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ABSTRACT

This publication marks the first volume of what is intended to be an annual showcase of outstanding research papers from the College of St. Thomas' (Minnesota) Masters of Arts in Gifted/Creative/Talented Education program. Section 1 focuses on gifted programs and teachers' perceptions, and includes "Taking Care of the Affective Needs of Gifted Students: A Survey of Twenty-seven Programs" (Joyce Kennedy); "A Gifted Program: What Difference Does It Make?" (Sara McKelvey); "Elementary Classroom Teachers' Attitudes about Programming for the Gifted, Creative, and Talented" (Carol Olson); and "Teachers' Attitudes and Practices Toward Reading Acceleration and Enrichment in the Elementary Grades" (Mary Ann Gaug). The second section discusses successful interventions in the following papers: "Which Promotes Creative Thinking: Guided Imagery or Creative Dramatics?" (Mary Jelinek); "The Future is Now: The Effects of Studying the Future on Students' Attitudes About the Future" (Shanda Waller); "The Relationship Between Perceived Perceptual Strengths and Learning Styles in Academically Talented Junior High School Students: A Case Study" (Sharen Hilliard); and "Does A Test of Creativity Predict Scores in Future Problem Solving Competiton?" (Betty Schwermann). Section 3 covers giftedness and family relationships in "Will Women Ever Get Out of the Kitchen? Changing Perceptions Among Adolescents and Their Parents on Women's Roles" (Linda Kuipers) and "The Gifted Child in School and At Home: Parents' Perspectives" (Susan Cathey). The final section returns to the study of successful interventions in "Motivational Differences Between Groups with Different Academic Potentials and Achievements" (Sonie Crockett); "Cognitive Style and Achievement : Is There a Relationship?" (Patricia Hildebrandt); and "Effects of Ability and Sex Upon Adolescent Perceptions of Self and the Future" (Beverly Mooney). (PB)

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MASTERS' PAPERS: No. 1 Through No. 13

Volume One 1988

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GRADUATE RESEARCH REPORTS

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Volume One 1988

GRADUATE
RESEARCH
REPORTS

Master of Arts in Gifted/Creative/Talented Education

Karen B. Rogers
Editor

GRADUATE RESEARCH REPORTS

Volume One 1988

CONTENTS

Introduction

Section One: Gifted Programs and Teachers' Perceptions

Paper No. 1: "Taking Care of the Affective Needs of Gifted Students: A Survey of Twenty-seven Programs" Joyce Kennedy, Bloomington Schools 1

Paper No. 2: "A Gifted Program: What Difference Does it Make?" Sara L. McKelvey, Burnsville Schools 7

Paper No. 3: "Elementary Classroom Teachers' Attitudes About Programming for the Gifted, Creative, and Talented" Carol Olson, St. Paul Schools 12

Paper No. 4: "Teachers' Attitudes and Practices Toward Reading Acceleration and Enrichment in the Elementary Grades" Mary Ann Gaug, Bloomington Schools 18

Section Two: Successful Interventions

Paper No. 5: "Which Promotes Creative Thinking: Guided Imagery or Creative Dramatics?" Mary Jelinek, Rosemount Schools 22

Paper No. 6: "The Future is Now: The Effects of Studying the Future on Students' Attitudes About the Future" Shanda J. Waller, North Branch Schools 26

Paper No. 7: "The Relationship Between Perceived Perceptual Strengths and Learning Styles in Academically Talented Junior High School Students: A Case Study" Sharen Hilliard, Wayzata Schools 32

Paper No. 8: "Does A Test of Creativity Predict Scores in Future Problem Solving Competition?" Betty Schwermann, Chaska Schools 38

GRADUATE RESEARCH REPORTS

Volume One 1988

CONTENTS

Section Three: Giftedness and Family Relationships

Paper No. 9: "Will Women Ever Get Out of the Kitchen? Changing Perceptions Among Adolescents and Their Parents on Women's Roles" 42
Linda Kuipers, Rosemount Schools

Paper No. 10: "The Gifted Child in School and at Home: Parents' Perspectives" 48
Susan Cathey, Fridley Schools

Section Two: Successful Interventions

Paper No. 11: "Motivational Differences Between Groups with Different Academic Potentials and Achievements" 51
Sonie B. Crockett, Roseville Schools

Paper No. 12: "Cognitive Style and Achievement: Is There a Relationship?" 55
Patricia Hildebrandt, Rosemount Schools

Paper No. 13: "Effects of Ability and Sex Upon Adolescent Perceptions of Self and the Future" 60
Beverly Mooney, West St. Paul Schools

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INTRODUCTION

This publication marks the first volume of what is hoped to become an annual project to showcase outstanding research in the Master of Arts in Gifted/Creative/Talented Education program. Since 1980 each graduate student in this program has been required to conduct an original research study and write up the analysis and results in research journal format. Many of these manuscripts have been submitted to and accepted by the leading journals in the field. At the same time, however, many outstanding manuscripts have not been accepted by these journals due to limited space. The publication vehicles in the field of gifted studies are few; consequently, competition for publication is intense. When an editor has the choice of accepting a manuscript by a "known" expert in the field or by a Master's degree student, odds are probably in favor of the expert, no matter how well designed the student's study, how well written the report, or how much the study may contribute something new to the field.

Volume One contains a "baker's dozen" of articles* covering a range of topics within the field of gifted studies. Section One is devoted to perceptions of gifted programs. Four papers were included that dealt with this theme. Kennedy's study goes well beyond Cox's reports of the Richardson Study (1985), with its special insight into affective development. Programs, kindergarten through twelfth grade, were surveyed and observed. What the researcher found was heartening. The majority of programs made systematic attempts to integrate affective components with content presentation, although secondary teachers expressed much more difficulty in finding this practical. Kennedy argues masterfully in this article that by reaching the feelings of gifted students educators possess a powerful catalyst for learning.

Paper No. 2 describes a causal-comparative study of two high schools. The two schools were similar in most respects, but different in that one contained a well-developed gifted program consisting of a variety of gifted options, a counselor designated to place students into appropriate options, and a strong supportive advisory council. McKelvey found that teachers in both schools were highly supportive of gifted students' needs. Significant differences were found, however, in the degree of exposure to gifted workshops and coursework between the two schools. All teachers in the school with the gifted program in place had received more training and reported a stronger desire to receive additional training. Although two schools are not enough for generalizations, the study may indicate that there is a "trickle down" effect when a school has a well-established gifted program. It appears that all teachers generally benefit in terms of training and feelings of efficacy.

Paper No. 3 in this first section looks at a similar issue among elementary teachers. Olson used a survey to measure teachers' attitudes toward a variety of gifted program options. Significant differences were found between teachers with training in gifted education and those without training in their perceptions of these options. The most disconcerting difference was in attitudes toward providing enrichment in the regular classroom. Teachers with gifted experience felt this was less desirable an option that did non-experienced teachers. The question then becomes, how do we tell teachers without training what differentiated curriculum is when they think they are already doing it? Olson's study leaves the reader convinced of the absolute necessity of extensive teacher in service on the nature and needs of the gifted.

The last paper in this section focuses specifically on teachers' attitudes toward program options for the gifted reader. Gaug has had this article printed previously in Reading Teacher, but we found the article of such import that it is reprinted in this volume. Gaug reports that the general concern teachers have about acceleration is alive and well in the content area of reading. Teachers were found to be highly supportive of enrichment, but negatively inclined toward moving a child ahead in reading. It is apparent that all teachers need exposure to the strong, consistent body of research on acceleration which suggests the beneficial aspects of this program option.

Section Two of this monograph contains three papers describing specific interventions. While the four papers surveying teachers' attitudes and perceptions about programs were primarily of the survey design, three of the four papers in this section are fine examples of the quasi-experimental design. In Paper No. 5, Jelinek compared two interventions involving the development of creative thinking skills to determine if either or both would help her young gifted primary students become more creative. Second grade students were randomly assigned to either one of the two experimental treatments or to the control group. Students were pre-tested and post-tested on the levels of their creative skills. Both treatments led to significant improvement, but one was more effective than the other. You may wish to make your own hypothesis before you read this article!

*(Those readers with Triskaidekaphobia may wish to renumber the sequence of papers!)

Paper No. 6 describes a comparison of pre- and post-test responses to a futures attitude survey of fourth and fifth grade gifted and nongifted students. A randomly assigned sample of these children were provided a six-week "treatment" through the implementation of a unit, The Future is Now, developed previously by the researcher. Waller found that the experimental group reported a much stronger perception of control they would have in shaping their personal future, giftedness aside. Her study is, furthermore, a validation of the importance of teaching about the future to all children.

Paper No. 7 contains a remarkably complicated quasi-experimental study concerning the efficacy of teaching through learning styles. Much has been written about a variety of learning styles inventories over the past decade. Unfortunately, many of the creators of these instruments are more preoccupied with to the notion of teaching through style than with establishing the validity of their instrument. Hilliard administered the Dunn & Dunn Learning Styles Inventory to 45 academically talented junior high students. After presenting three vocabulary units, one each for the three modalities measured by the LSI, Hilliard found that auditory learners made significant gains in achievement when taught through that modality. Whether or not gifted students may have developed their auditory skills more fully, thus contributing to the significant results found here, will probably be a research question Hilliard undertakes at some time in the future.

The final article, Paper No. 8, reports a correlation/regression study of the effects of placing high scorers on the verbal form of the Torrance Tests of Creative Thinking by score onto Future Problem Solving Bowl teams. Schwermann found no relationship between TTCT test scores and FPS sub-scores, but a team's mean score on the TTCT and FPS sub-scores were related, especially for originality. Although Schwermann leaves us with the question of whether or not the figural form of the TTCT might have more predictive power, her study in eminently practical for all FPS teachers and coaches to read.

Section Three contains only two articles in this monograph, both dealing with giftedness and family relationships. Paper No. 9 by Kuipers explored her interest in how parents and teens perceive women's roles in the 1980's. She did find a "generation gap," but the tables were turned—parents were more positive about women's potential, career choices, dependability, and access to equitable opportunity and pay, than were the teens themselves. Females (mothers and daughters) in this study were significantly more positive on these issues, however, than were the fathers and sons studied. Kuipers' study indicates that while we have made tremendous strides in narrowing the gender gap, there is still more work to be done.

Paper No. 10 by Cathey describes an extensive survey of parents of formally identified gifted students in one school district to determine their perceptions of gifted program options and their personal concerns for their children's adjustment. The majority of parents were pleased with the specific options offered for the respective grade levels of their child. Their greatest personal concerns were with helping their child: (1) overcome a fear of failure and risk taking; and (2) adjust to feelings of alienation and differentness. Cathey's study may give us important clues for what parents need from educators outside of the school day. Parent support groups may be an important part of a district gifted program, as indicated by this study.

The final section of this monograph contains three articles on characteristics of gifted individuals. The study designs vary widely, as do the characteristics studied. Paper No. 11 reports a comparative study of five groups of students with varying degrees of academic potential and achievement level. All groups were compared for motivational levels and perceptions. The "Very High Potential" group was found to be significantly more motivated toward school, reporting more positive levels of personal control, idealism, flexibility, optimism, and belongingness than other groups. Correspondingly, the group with average potential and low achievement levels were significantly less positive on these motivational factors. Crockett's study makes for interesting topics for further research. Of particular interest would be the group of high potential/ low achievers who were significantly more positive than the average potential/low achievers in idealism, personal control and flexibility, but significantly less positive than the very high potential group on these same three factors and on optimism. It becomes clear that underachievement is a highly complex issue.

Paper No. 12 represents a strong combination of correlational and comparative study designs. Hildebrandt administered an array of cognitive styles tests to a large sample of primary students. Her findings that risk taking is more prevalent among boys and that gifted students tend to be significantly more field independent, internally - oriented, prefer autonomy, and are more willing to take risks have important implications for primary classroom teachers and how they teach.

Last, but not least, Paper No. 13 by Mooney, contains a well-written comparative study of adolescents' perceptions of themselves and the future. Several differences in perception were found when these teens of varying ability levels were compared. Sadly, Basic students reported significantly lower self-confidence and self-sufficiency and less positive beliefs in their personal control over their future than did Average and Gifted students. Likewise, there were large differences in self-perception between male and female adolescents. It is apparent that future studies are importance in improving the sense of control over the future which sadly, many adolescents, gifted or otherwise, lack. Mooney leaves us, at the end of this monograph, with a sense of urgency that our understanding of control has only just begun. More research is needed, but that must wait for Volume Two!

SECTION ONE: GIFTED PROGRAMS AND TEACHERS' PERCEPTIONS

PAPER NO. 1

Taking Care of the Affective Needs of Gifted Students: A Survey of Twenty-Seven Programs

Joyce Kennedy
Bloomington Schools
1986

Taking Care of the Affective Needs of Gifted Students: A Survey of Twenty-Seven Programs

Joyce Kennedy
Bloomington Schools

Abstract

The author, while visiting gifted programs in twenty-seven schools located in several states, surveyed various school personnel to see if the curricular design of gifted programs reflected the complex interaction between the cognitive and the affective needs of gifted students in the following areas: learning environment, learning content and mode of delivery. The survey also sought to determine whether instructional programs for the gifted provided for self-esteem and self-awareness lessons and activities *in addition* to the regular content curriculum, whether affective and cognitive components were *integrated into lesson design* or whether the two approaches were used in combination.

Introduction and Background

In their review of the research literature of the affective characteristics of gifted children, Franks and Dolan (1982) described three traits which have received the most attention from researchers of giftedness: persistence, independence and self-concept. Other differential affective characteristics of gifted students described in the literature have included idealism and sense of justice, emotional depth and intensity, advanced levels of moral judgment, keen sense of humor, unusual sensitivity, heightened self-awareness, high expectations of self and others (Clark, 1983), originality, curiosity, a sense of wonder, and social responsibility (Ehrlich,1983). In delineating six personal characteristics of gifted secondary students, Perrone (1983) included divergent behavior and goal orientation with task persistence in an intrapsychic triad, and interception, social awareness and social effectiveness in a social triad. A study of learning style characteristics of subjects grades 4-8, conducted by Dunn & Price (1980), corroborated previous studies, indicating that the gifted are persistent, but consider themselves less responsible than their classmates. The researchers speculated that this may be related to the gifted student's predispositions for independence, self-criticism and creativity.

Definitions of Giftedness Which Include the Affective

Albert (1975), who studied the lives of eminent scientists, musicians, psychologists, and artists, defined giftedness in behavioral terms, stating that the type of creative behavior that leads to eminence requires a particular combination of cognitive and personality development that begins early in life. Other more recent definitions of giftedness have also stressed affective behavioral aspects. Gagne (1985), in "Reexamining a Reexamination of the Definitions," credited Joseph S. Renzulli with redefining giftedness to include motivation. In Gagne's own model, affective components of motivation, personality, and environment are the catalysts that may transform gifts into talents. According to Perrone (1983) giftedness is situational; he defined it as the amount of reserve or surplus in conceptualization skills, motivation, task commitment and divergent thought processes existing within the individual, given the demands of the learning environment, work, family and community.

Two Psychologists' Views

In the introduction to the paperback edition of his book, *Frames of Mind: The Theory of Multiple Intelligences* (1985), cognitive psychologist, Howard Gardner, defined an intelligence to include the affective in its emphasis on creativity and cultural setting: "An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings." (p.16). Another approach to the cognitive that acknowledges connections to the affective is Perkins' "knowledge by design" framework (1983). Perkins describes six general principles of creative thinking: attention to aesthetics, attention to purpose, ideational mobility, working at the edge of one's competence, objectivity as well as subjectivity, and intrinsic motivation. Education, he suggested, should employ methods of teaching which utilize these behaviors of the creatively gifted with students. This can best be done by using the metaphor, ***knowledge as design*** and asking four design questions about any content: What is the purpose? What is the structure? What are some model cases? What are arguments for and against the design? The strength of Perkins' metaphor is that it allows for emotional involvement. Knowledge is not static, something to be received passively from the teacher/authority--it is a living, vital process that can engage students both intellectually and emotionally.

Searching for the Affective in Instructional Design

The affective characteristics of gifted students translate into needs. In her book, *Growing Up Gifted* (1988), Clark suggested that educational planning for cognitive development, must stem from the special needs and characteristics of the children to be served. Classroom organization and teaching must somehow be related to those differential needs.

In *Teaching Models in Education of the Gifted* (1982), Maker stated that Williams' teaching strategies for thinking and feeling present a unique combination of thinking and feeling behaviors and that no other approach (with the possible exception of the Renzulli model) recognizes in its procedures the major role that the affective domain plays in learning, producing and thinking. She proposed that it is the only approach among the major models that includes the development of affective characteristics involved in creativity. Williams (1966) believed that it is possible to emphasize the affective directly through subject matter rather than indirectly or in isolation from the regular school curriculum.

The Richardson Study

The Richardson Study (Cox, Daniel & Boston, 1985) put together the findings of a national investigation of educational opportunities for able learners, answering three central questions: (1) What programs for able learners exist and where are they located? (2) Of the existing models, which are most effective and offer the best chance for adaption in many school environments? (3) Can some new ground be broken in the field, and can recommendations be provided to assist all types of schools in serving able learners?

The report, completed in 1985, found that the most commonly offered option for able learners is the special class or "pull-out" model, and that substantial programs are apt to be found in school districts of 50,000 or more people where per pupil expenditures for special programs are greater and where a supervisory staff for gifted/talented programs, a written philosophy, and a special budget are in place.

Affective Needs Survey

The Richardson Study did not gather information about academic content nor did it gather information about how programs accommodated the affective needs of their students. The author of this article visited twenty-seven programs for the gifted in order to observe how those programs took account of and provided for the affective needs of their students in terms of the learning environment, content, and mode of delivery. She sought to determine whether affective and cognitive components were integrated into lesson design directly through subject matter content, as in the Williams productive-divergent thinking model, or whether the affective was emphasized indirectly or in isolation from the regular gifted curriculum through self-esteem and self-awareness lessons and activities. She also sought to find out if, in some instances, programs used those approaches in combination.

Method

The author visited a variety of elementary and secondary schools in Minnesota, Washington, Oregon, California, Wisconsin, Indiana and Michigan. Visits were also made to private schools, including two designed specifically for the education of gifted children, as well as public schools. Programs varied in organizational plan, time constraints, and emphasis. Elementary schools usually featured pull-out programs on site, although some had cluster classrooms and five school districts had full-time, self-contained gifted classrooms. In one program, students in the gifted pull-out program were bused to a central environment. Middle schools and junior high schools usually featured enriched or accelerated classes and senior high school honors or advanced placement classes. One middle school visited was a full-time magnet school for gifted and talented and another was a magnet school for the arts. In some schools, the author was invited to sit in on class sessions and, in some cases, even to participate; in others, she was given a tour of the building or buildings and an explanation of the program from an administrator. In some schools, she had a general tour and then visited a class or two. Figure 1 displays the types of schools and programs visited.

Figure 1

Types of Schools and Programs Visited

Level	Program
Elementary	
Montessori	Continuous progress
Private school for gifted	Continuous progress
Public	Building pull-out Pull-out to central site Full-time self-contained classrooms Cluster classrooms Enrichment in regular classrooms
Junior High School	
Private school for gifted	Continuous progress
Public	Full-time school for gifted Full-time school of arts Renzulli Enrichment Triad Pro-active counseling Enriched classes
Senior High School	
Public	Gifted classes Honors classes Advanced placement classes

Instrumentation

A survey, the *Affective Components Survey*, (ACS), was developed to aid in the systematic collection of data for each school visitation. Items in the survey were written to present elements in instructional design that support, enhance and develop the affective characteristics of gifted students. The items developed, based on the literature, were intended to measure such characteristics of the learning environment as: (1) relaxed, but stimulating atmosphere geared to the individual; (2) provision for divergent needs of the student; (3) atmosphere conducive to independence and persistence. Items intended to measure aspects of content dealt with the gifted student's: (1) previous knowledge and experiences; (2) emotional depth and intensity; (3) levels of moral development; (4) sense of social responsibility; (5) originality; and, (6) capacity for associative, critical and creative thinking. Items directed toward defining and measuring the mode of delivery emphasized: (1) goal orientation; (2) processes which develop social awareness and effectiveness; and (3) support of the need for independence and divergency.

For each item in the ACS, the respondent was asked to circle the response (Seldom, Sometimes, Frequently, Nearly Always) that best described the way in which the gifted program took care of the needs of its gifted students. In analyzing the items statistically, items were given values (1-4) from lower (seldom) to higher (frequently).

Procedure

The surveys were filled out during the visitations by the resource teacher (either pull-out or classroom), the gifted program coordinator, the principal or director of the school, or by a person with a "combination" role, such as coordinator/resource teacher. Usually the person with whom the author had the most contact completed the form, although in some instances, there was more than one respondent. Data in the survey were analyzed according to program, type of school (public or private), position of respondent (resource teacher, coordinator, counselor, combination, principal or director), level (elementary, junior high, senior high, all) and response to item. In all, there were thirty-six respondents representing twenty-seven programs.

Results

Analysis of variance on items in the three parts of the survey revealed no significant differences among gifted program type in response to items except for item 2 in the Mode of Delivery section, "Provision is made for learning activities which involve group interaction." Respondents of all but two programs gave the "frequently" or "nearly always" response. "Sometimes" was given by two respondents representing the cluster classrooms featured in their districts' programs for the gifted.

Analysis of variance of items in the survey showed no significant differences between public and private school provisions for the gifted. In analyzing responses in terms of the position of the respondent, significant differences were found in the counselor response to item 1, "A variety of learning centers present students with opportunities to develop individual interests and strengths," in the Learning Environment part of the survey and in item 3, "Lesson design and content makes use of students' levels of moral development and sense of community," in the Learning Content part. In both instances, the counselor response of "Nearly Always" differed from the lower value responses given by others.

Analysis of variance in terms of level of program revealed the most significant differences. In the Learning Environment section of the survey, item 3, "the learning environment is aesthetically pleasing; it presents a relaxing, yet stimulating atmosphere," the high school response was significantly lower, as it was to three items in the Learning Content section--item 2, "Lesson design and content makes use of students' feelings to help develop self-knowledge," item 3, "Lesson design and content makes use of students' levels of moral development and sense of community," and item 6, "An interdisciplinary approach to content allows students to make connections among knowledge domains." In the Mode of Delivery section of the survey, the high school response indicated a significant difference for item 4, "Students are taught problem-solving and decision-making skills." Two other items in this section were close to being significantly different on the high school response, receiving lower value responses--item 3, "Technology and a wide variety of instructional materials are used to provide for diversity in student learning styles and to adapt to individual needs," and item 5, "Students are encouraged to take responsibility for their own learning."

Table 1 displays the mean responses to items on the *Affective Components Survey*. Mean scores received on two items in the Learning Environment section of the survey—item 1, "A variety of learning centers present students with opportunities to develop individual interests and strengths," and item 5, "Students are involved in the creation of the learning environment by setting up projects, arranging displays, designing bulletins, etc." indicated that more lower value responses were consistently given to these two items than to the other three in this section. Likewise, in item 3 under Learning Content, lower value responses were given to the statement, "Lesson design and content makes use of students' levels of moral development and sense of community."

From thirty-six responses to the statement that best described the way instructional programs provided for the affective needs of gifted students, statement 1, "Self-esteem and self-awareness lessons and activities are provided in addition to the regular content curriculum," received two responses; statement 2, "Affective and cognitive components are integrated into lesson design as in the Frank Williams cube model for productive-divergent thinking," received eleven responses and statement 3, "The above approaches are used in combination," received twenty-three responses.

Table 1

Mean Responses to Individual Items on the Affective Components Survey

The Learning Environment			
Item	**N**	**X̄**	**SD**
Centers	36	2.6944	0.7099
Display	36	3.5000	0.6094
Aesthetics	36	3.4444	0.6522
Style	36	3.1944	0.7863
Projects	36	2.9722	0.8102
The Learning Content			
Item	**N**	**X**	**SD**
Knowledge	36	3.4722	0.6964
Feelings	36	3.2000	0.7593
Moral	36	2.9167	0.7319
Open	36	3.4444	0.6947
Independent	36	3.3611	0.7787
Interdisciplinary	36	3.2778	0.7787
Domains	36	3.4167	0.6492
The Mode of Delivery			
Item	**N**	**X**	**SD**
Facilitator	36	3.4167	0.6918
Group	36	3.5000	0.6094
Technology	36	3.2500	0.6036
Problem-Solving	36	3.6111	0.5492
Responsibility	36	3.3889	0.6449
Sharing	36	3.3333	0.7171

Discussion

That gifted programs do make provisions to take care of the affective needs of their students is indicated in the responses to the *Affective Components Survey*. This was corroborated by the author's observations while visiting the twenty-five sites. According to the survey, twenty-five of the programs surveyed attempted to integrate affective components into lesson design or use this approach in combination with self-esteem and self-awareness lessons and activities. It appears that many gifted programs are indeed taking the strongest approach to meeting the complex affective components with lessons and activities especially focused on self-awareness.

The significant difference in program response to item 2 in the Mode of Delivery section, given by respondents in appraising the cluster classrooms of their programs, may indicate the difficulty some teachers feel in providing the logistics for interaction in the heterogeneous classroom. The smaller number of students in a pull-out class makes it easier for constructive interaction to occur. Since this kind of learning is highly beneficial for gifted students, it is important that program planners deliberately build for the interactive mode in learning situations, making it logistically feasible.

The significant differences indicated by position of respondent showed higher value responses from counselors than from other respondents for two items. However, only one counselor filled out the survey, one who as a proactive counselor works daily with individuals and small groups in a setting highly responsive to student needs. This individual was the only full-time counselor for the gifted in the twenty-seven programs that the author visited. In general, taking care of the affective needs of the gifted does not automatically include counseling services, even though the need for a guidance component has been well documented in the literature (for example, Webb, Meckstroth & Tolan,1982; Zaffron & Colangelo,1977).

The most variance among responses to items was at level of program. Although twelve people answered the survey in terms of total program, including high school, only one high school teacher, an Honors English teacher, responded to the survey, and her responses undoubtedly caused the variance. It is obvious that for more reliability, more high school teachers should be asked to respond to the survey to see if there is a consistency of response outcome. It may be that, with the secondary emphasis on discrete subject matter, teachers are missing opportunities to use that subject matter as the basis for creating a rich and colorful environment, for incorporating students' feelings, levels of moral development and sense of community, for teaching problem-solving and decision-making skills and for making connections to other knowledge domains. All of these endeavors would richly benefit gifted secondary students and make powerful connections between the cognitive and the affective,

In analyzing the individual items under Learning Environment, mean scores indicated that lower value responses were consistently given to items 1 and 5 than to the other three items in that category. Likewise, lower value responses were given to Item 3 than to the other items under Learning Content, Teachers of the gifted, especially at the elementary level, may want to consider using a variety of learning centers as another way to individualize instruction and to enhance, support and develop strong student interests. In an earlier article, Feldhusen (1981) described her method of taking care of the cognitive and affective needs of the gifted students in her regular classroom by organizing classroom space into centers for science, math, art, writing, spelling, listening, and library, and by monitoring activities at the centers with Learning Agreements. Students are thus given some choice and control over their own learning. Similarly, giving students opportunities to set up projects, arrange displays and design bulletins gives them ownership of their own learning environment. The Urban Arts Program, one of the National Diffusion Network programs described in *Educational Programs that Work*, has trained teachers in twenty states to prepare and direct students' arts support crews as a strategy for using students' talents and energies to improve appreciation of the arts in schools. Student curator crews, stage manager crews, camera crews, graphics crews, and writers' crews involve students in a way that makes use of their creative energies in an interdisciplinary context. Using lesson design and content to make use of students' levels of moral development and sense of community is another way of giving students opportunities to use their affective gifts in a broader, societal context.

In order to attend to the affective needs of gifted students in the classroom, teachers must first become consciously aware of the depth of those needs and then make them an important design element in planning learning experiences. If we do this, we will reach that population of feelings that is our gifted student, and we will be using those feelings as a most powerful catalyst for learning.

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SECTION ONE: GIFTED PROGRAMS AND TEACHERS' PERCEPTIONS

PAPER NO. 2

A Gifted Program: What Difference Does it Make?

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1983

A Gifted Program: What Difference Does It Make?

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Abstract

Two hundred fifty-seven secondary teachers from two midwestern school districts were surveyed to determine if the establishment of a substantial gifted program affects teachers' opinions in 7 areas: (1) attitudes toward gifted students; (2) attitudes toward gifted programs; (3) willingness to cooperate in developing gifted curriculum; (4) knowledge of available gifted program options; (5) type of program preferred; (6) interest in gifted training; and (7) kind of information desired about gifted learners. Teachers in the school district having a well-established gifted program were found to have received significantly more training concerning giftedness and were more willing to cooperate in the development of appropriate curriculum for their gifted students. Attitudes toward the gifted were generally positive by both teacher groups.

Introduction and Background

Parents of gifted children may well be confused and concerned about the education being offered at the high school level. Many high schools do not identify or program their gifted students, but rather offer a variety of mainstream courses at varying levels of difficulty. Current research has not indicated widespread acceptance by regular classroom teachers of the necessity to meet the differing needs of gifted students. A compelling argument has been made relative to the current status of gifted education. Ginsberg-Riggs (1981) reported that most people are not comfortable with gifted children, and that labels, such as "superior", may be a cause of this discomfort and hostility. Gifted students may find that their high ability does not always generate a favorable response from their environment. Attitudes of others can directly affect the gifted student in both achievement motivation and self-confidence, and indirectly have an impact on learning, acceptance and encouragement (Mills & Berry, 1979).

Many different approaches have been proposed in an effort to best meet the needs of gifted students. Although the relative educational value of these may vary according to individual student needs, it is apparent that positive teacher attitudes and cooperation are essential for any program to function well.

Administrators and students obviously desire active faculty support. A study by Nicely, Small and Furman (1980) indicated that the more knowledge teachers have about gifted students and programs, the more likely they are to be supportive of student participation. An evaluation survey done by the Missouri State Department of Elementary and Secondary Education (1978) determined that teacher attitudes toward gifted programs in general were more positive than was their willingness to cooperate with individual needs.

The Questions

A study by Tremaine (1979) underscores the value of gifted programs at the high school level. Significantly higher academic performance and achievement were attained by gifted students enrolled in gifted programs than by those who attended schools with no programs or were not enrolled. The study indicated that programs influence student outcomes, but what effect do programs have on teacher attitudes, and consequently on educational performance? Administrators often express the belief that the presence of a strong gifted program can positively influence teacher attitudes toward gifted students as well as the quality of differentiated education in an entire building.

It has also been demonstrated that teacher participation in workshops and inservices on gifted education substantially increases positive attitudes toward gifted students (Martinson, Hermanson & Banks, 1972). Are there differences in awareness of the needs of the gifted and amount of knowledge about the gifted (inservices, workshops, college courses) between teachers in schools with and without programs?

Finally, and perhaps most importantly, what do teachers want? What do they feel is the most effective way to educate their gifted students? Do they want to increase their knowledge through inservices and workshops? What specific aspects of educating the gifted would they like to learn more about, and are there expressed differences between the needs of teachers in schools with programs and those without programs?

Based on reported literature, a reasonable hypothesis would be to assume that teachers in high schools without gifted programs have less favorable attitudes toward gifted students and programs and are less likely to cooperate with differences in programming.

Method

Sample

Two high schools in the suburban Minneapolis-St. Paul area were surveyed. School N (no gifted program) was located in a growing middle-class suburb (pop. = 36,000), although total school enrollment had declined somewhat, from 10,200 to 9,750, over the past ten years. High school N was chosen because it did not identify or specifically program its gifted students. Although there were advanced sections of courses offered in mainstream for all students and an Advanced Placement mathematics class, there was essentially no formal gifted program.

High school G (gifted program) was somewhat smaller than high school N. It was also located in a middle-class suburb (pop. = 43,000), but the community is older and has stabilized in growth. School population had declined rapidly, however, from 8,800 to 4,400 in the past decade. The two communities were comparable in socioeconomic level, with 1977 per capita income in District N at $7,010, and $7,705 in District G. School G was chosen, in contrast to School N, because specific programs for the gifted have been operating for over eighteen years. It was the only school in the state of Minnesota to employ a counselor to specifically work with gifted students on a weekly basis in grade level groups to discuss common problems and interests. Building accomodations for the gifted included Advanced Placement mathematics, English and history courses, college preparatory science classes, and an active mentor program. A Gifted Council, composed of one faculty member from each department and the gifted counselor, met on a monthly basis to share concerns and ideas.

Survey Instrument

The intention of the *Teacher Opinion Survey* (TOS) was to compare the differences between faculty members in School N and School G in the several areas. A variety of positively stated items were developed to measure teachers' opinions in the following areas: (1) attitudes toward gifted students; (2) attitudes toward gifted programs; (3) willingness to cooperate with curriculum needs of gifted students; (4) knowledge of available programs within the building; (5) type of program desired; (6) interest in attending inservices; and (7) kind of information desired about gifted students.

Procedure

Every faculty member in both schools received the TOS through interdistrict school mail, and their responses were given and returned anonymously. A total of 257 teachers received the TOS, and 90 of them were returned, for a 35% response level.

Results

There were no significant differences between the faculties of School N and School G on the basis of sex, background in teaching accelerated or advanced classes, years of teaching experience, or completion of college courses on educating the gifted. Almost twice as many teachers at School G, however, had attended inservices or workshops on gifted education. Table 1 displays the characteristics of the comparison teacher groups.

Table 2 shows the major differences of opinion between teachers from Schools N and G on program awareness and willingness to cooperate. Questions concerning the current status of gifted education within the buildings were asked in an attempt to compare awareness and intra-faculty communication, rather than to assess actual program offerings. Teachers in School G were significantly more positive on three general programming issues: (1) need for using outside experts to provide advance content; (2) need for staff development; and (3) awareness that school offered Advanced Placement courses, mentorship opportunities, research study, enriched classes, and a pullout program.

As Table 2 shows, teachers at School G were significantly less likely to require gifted students to routinely complete regular assignments before working on special projects. They were also more likely to recognize a need to differentiate curriculum than teachers from School N. Moreover, School G teachers assigned independent projects more frequently than did teachers at School N.

Table 1

Faculty Differences

		School N	School G
1. Sex:			
	Male	42.9%	33.3%
	Female	57.1%	66.7%
2. Taught advanced, accelerated or enriched classes:			
	Yes	49.1%	62.5%
	No	50.9%	37.5%
3. Years of teaching experience:			
	1-3 years	—	—
	4-10 years	10.5%	9.1%
	10 +	89.5%	90.9%
4. Taken college courses on gifted/gifted education:			
	Yes	28.1%	36.4%
	No	70.2%	57.6%
	Don't Know	1.8%	6.0%
5. Attended workshops or inservices:			
	Yes	36.8%	69.7% *
	No	61.4%	30.3%
	Don't Know	1.8%	

* statistically significant ($p < .05$)

An optional section of the survey asked teachers to rank order various types of gifted programs according to desirability. Although the teachers at School G have had more exposure to specific types of gifted programs than those at School N, the responses from both schools were similar. Both schools overwhelmingly indicated "no intervention" to be the worst choice, with "early graduation " also meeting with disfavor as a way to meet the needs of the gifted. Teachers at School G, however, ranked their first five choices equally, whereas teachers at School N strongly preferred "advanced sections of a subject" and "College Board Advanced Placement classes" as their first two choices. Table 3 displays the comparative rankings of 9 program choices for the two groups of teachers.

Disregarding school differences, the value of college courses on gifted education was affirmed. A significantly greater number ($p < .02$) of teachers without exposure to college classes than those with a college level background indicated a need for more help in compacting and modifying curriculum for gifted students.

Table 2

TOS Differences Among School G and School N Teachers on Program Awareness and Cooperation Issues

TOS Item	Response Categories	School N (Percent)	School G (Percent)
Use of experts to provide advanced content	Y N DK	3.6 62.5 33.9	78.1 12.5 * 9.4
Need for staff development on identification, curriculum	Y N DK	5.6 72.2 22.2	72.7 18.2 * 9.1
Provision of Advanced Placement courses	Y N DK	64.0 24.0 12.0	93.5 3.2 * 3.2
Provision of Research Opportunities	Y N DK	34.0 30.0 36.0	63.3 10.0 26.7
Provision of Mentorships	Y N DK	8.2 40.8 51.0	48.3 10.3 41.4
Provision of Separate, Enriched classes	Y N DK	48.0 38.0 14.0	71.4 7.1 21.5
Provision of Pullout Program	Y N DK	8.3 47.9 43.8	72.4 3.4 24.2
Required completion of regular assignments before special provisions are made	A F S N	42.2 24.4 28.9 4.4	16.7 33.3 * 50.0 0
Need for aid in compaction, differentiation of classroom activities	A F CS N	5.0 22.5 70.0 2.5	10.3 51.7 * 31.0 6.9

Y = Yes
N = No
DK = Don't Know

A = Always
F = Frequently
S = Seldom
N = Never

* $p < .05$

Eight questions in the TOS were designed to assess teacher attitudes about gifted students and gifted programs. Differences between the schools were not statistically significant, but a higher percentage of positive attitudes were reported from School G.

Although twice as many teachers at School G reported previous workshop or inservice exposure to gifted education as compared to School N, both groups indicated a desire to learn more (62.1% as compared to 65.9%).

Table 3

Comparative Rankings of Program Options by Teachers from Schools N and G

Program Option	School N Rank	School G Rank
Advanced Sections of a Subject	1	1
College Board Advanced Placement Courses	1	1
Enriched classes/ability grouping	3	1
Independent projects/research	4	1 *
Enrichment by mainstream teachers	6	1 *
Mentor-guided independent study	5	6
Mini-courses in mainstream	7	7
Early graduation	8	8
No intervention	9	9

* Spearman correlations significant at $p < .05$ level

Discussion

Teacher attitudes toward gifted students and programs were found to be similar in both schools. Apparently the presence of a gifted program did not significantly affect teacher attitudes, since both schools indicated generally positive views toward the needs and differences of gifted students.

The results of this survey replicated the findings of a study by the Missouri State Department of Education (1978), which indicated that teacher attitudes toward gifted programs are more positive than is their willingness to cooperate in providing a differentiated program. In the present survey, teachers at School G were more willing than those at School N to cooperate with individual needs in the regular classroom. It was apparent that positive attitudes may not be related to willingness to cooperate, but the presence of a gifted program did appear to be related to teachers' willingness to alter basic program to meet the varying needs of gifted students.

Significant differences occurred also in levels of program awareness between the two schools. The staff of School N, with no program, were unaware of what was going on within the building for gifted students. The staff of School G was significantly better informed. The efforts of School G's Gifted Council with its monthly meetings of department representatives, may have been instrumental in increasing building communication and awareness.

Program awareness must be considered crucial to appropriate student advisement. Teachers are often a student's first resource in planning his/her course of study. School N was found to counsel all of its students by a teacher-as-advisor system, whereas School G used a gifted counselor assigned to its identified gifted to carry out this role, The lack of staff awareness (in School N) of program offerings must diminish the ability of teachers to advise gifted students appropriately.

A significantly greater number of teachers at School G reported inservice exposure to gifted education than those at School N. The survey did not differentiate between in-district workshops and out-of-district workshops or required versus voluntary attendance; consequently it could not be determined if the greater numbers trained in School G were due to district mandated exposure or voluntary teacher interest in response to the program. In any case, the teachers at School G were significantly more likely and willing to recognize the special needs of gifted students by easing up on regular class requirements in order to allow them to pursue special projects. It follows that teachers who allow for individual differences would recognize the need for help in modifying curriculum. This may explain the significant percentage of previously trained teachers in School G who reported a need for more help with curriculum development. Perhaps it is true that "the more we know, the more we know we don't know!"

The staffs of both schools desired similar programs for their gifted population. Both schools also indicated a need for increased knowledge through inservices and workshops, and ranked topics to be emphasized in a like fashion. Contrary to stereotypes, teachers in both schools did not seem to be resistant to the need for gifted programs, nor did they have negative attitudes about the needs and characteristics of gifted students.

Major differences between the schools were found in the area of intra-building communication, in community awareness and public relations concerning gifted education. School G was in a district that has suffered more than many others from declining enrollment, yet the gifted programs have survived and thrived. There was discussion of adding an Advanced Placement computer class in the next year; the commitment appeared to remain strong to provide challenging and modified curriculum.

School N, on the other hand, did not have either strong community backing or interested administrative leadership to initiate a gifted program, although the teachers indicated the need for increased and varied options for gifted students as well as the desire for more knowledge themselves on appropriate teaching techniques. Could it be that the presence of a strong, highly visible gifted program perpetuates interest in maintaining that program even in the face of financial demise?

It would be incorrect to conclude that all teachers surveyed harbored positive attitudes toward the gifted. It can be said, moreover, that there were more similarities in teacher attitudes than differences between the two schools. The real contrasts occurred in the area of program awareness and in willingness to cooperate with the needs of gifted students within the regular classroom. The key to better nurturing the talent at School N may not be in improving teacher attitudes, but rather in providing awareness of the needs of their gifted population, and in providing channels, such as scheduled interdepartmental meetings or a designated coordinator, for more effective faculty communication.

Teachers at both schools indicated the desire for challenging, individualized programs for the gifted as well as the need for increased personal knowledge in order to teach these students effectively. Leadership from administrators is essential to meeting these needs. A commitment to gifted education can result in quality programs despite tight budgets and declining enrollment, as evidenced by School G. Teachers want to know how to alter their teaching techniques, modify curriculum, and encourage creativity in their students. For districts without programs, workshops and inservices can be a cost-effective way to begin to address teacher needs, and perhaps provide a springboard for the development of an effective gifted program.

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PAPER NO. 3

Elementary Classroom Teachers' Attitudes about Programming for the Gifted, Creative, and Talented

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1986

Elementary Classroom Teachers' Attitudes About Programming For The Gifted, Creative, And Talented

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Abstract

One hundred ninety classroom teachers were surveyed concerning their attitudes about a variety of elementary program options for gifted students. Teachers with the greatest length of teaching experience were found to be less favorable toward providing their own enrichment materials and eliciting help in materials provision by an outside consultant, and more favorable toward clustering gifted students within one classroom. Teacher with extensive training in gifted education were significantly more likely to report a need for outside help in curriculum development, and were more in favor of utilizing a resource teacher for providing direct service to their gifted students. All teachers were generally positive toward providing advanced classes, grouping by ability for specific academic areas, pulling students out of regular classrooms for enrichment classes, and providing summer school enrichment for gifted students.

Introduction and Background

> The intellectually gifted child is an exceptional child, with exceptional educational needs. He is a rapid developer, rapid to the point that teachers need to make special plans and to provide individualized instruction for him commensurate with his capabilities. Unless his particular needs are met, he faces a problem of inadequate educational development and resultant disinterest (Worcester, 1956, p. 7).

As far back as 1956, the gifted were recognized as having special needs and therefore requiring special programming. Since that time a variety of options have been introduced with varying degrees of success. What has been learned is that because each gifted student is unique, with differing abilities, interest and needs, there is no one program appropriate for all (Department of Education, 1980; Kaplan, 1974). Establishing appropriate programs has become a major area of effort and concern among educators (Cox & Daniel, 1984; Flack & Gemmel, 1980; Renzulli, 1977; Teague, 1971; Crow, 1963).

In order to meet the needs of as many gifted students as possible, a school district's special program for the gifted should be a composite of several patterns which combine and adapt what is ideal with what is practical and feasible within the local school setting (Garrity, 1979). The needs of the students, their interests, backgrounds, and skills will determine which curriculum programs will blend together most appropriately (Schlichter, 1981).

The variety of program options from which school districts can choose can be categorized into 3 main types: (1) acceleration; (2) enrichment; and (3) grouping. Acceleration, the most controversial of all the gifted program types, includes early admission to kindergarten, telescoping, cross grade placement, grade skipping, and acceleration in specific subject areas. Research on acceleration can be best summed up in a statement by Julian Stanley of John Hopkins University:

> It appears that not a single substantial study has ever shown acceleration to be harmful to the typical accelerant who is intellectually able enough to warrant the use of such procedures. On the average, the results are decidedly beneficial, whereas withholding of acceleration from able, well-motivated youths is likely to harm their academic, social, and emotional development. Most of the evidence against acceleration is of the 'I knew a student..' variety. (Stanley, 1979, p. 71).

Moreover, S. P. Daurio's recent comprehensive review of literature (1984), reported no studies of educational enrichment that were as effective in meeting the cognitive needs of the gifted as acceleration.

Enrichment, the most common type of gifted program used in Minnesota ("Highlights", 1979-1980), is an educational program within the regular classroom, adapted to provide effective alternatives (Martin, 1983; Shimon, 1981). Some form of enrichment is used in all gifted programs regardless of their administrative organization (Travers, 1973; Rolston, 1962). Although students, parents, and teachers involved in enrichment programs have positively evaluated them, and studies show that those students achieve very well, certain assumptions must be met:

1. Class size must be reasonable.
2. The teacher will have time and energy for individualizing instruction.
3. There must be a wide variety of instructional materials and equipment: books, laboratories, teaching materials, and supplies.
4. The teacher must be sensitive to the needs and interests of gifted persons, and be psychologically secure as a person. (Worcester, 1975)

Grouping; the third general means for delivering instruction, covers everything from groups of one, small groups pulled from classrooms for additional instruction, special classes within the school, to separate schools for the gifted (Deighton, 1971; Pilch, 1972). In general the research on grouping has indicated this option can result in significant gains in academic achievement for gifted learners (Kulik & Kulik, 1982; Worchester, 1956).

In whatever program is adopted, classroom teachers occupy a very important role by virtue of their close association with the gifted students and the cooperative nature of the relationship between them and the gifted education staff. To ensure the best possible program, the gifted program must be made an integral part of the total school program successfully, the program must be healthy and there must be a core (or nucleus) of supportive, actively-involved classroom teachers, with whom the "blending" process begins (Treffinger, 1982). Indications that some teachers are indifferent to gifted students and gifted programs have been noted (Colangelo & Kelly, 1983). While much of this indifference can be circumvented with adequate inservice training about gifted programs and the special needs of gifted students, it must be recognized that not every teacher is interested in working with gifted students, nor has the ability to work effectively with them (Wetherell, 1983; Schnur, 1980).

It was upon this issue of attitudes that the following study was undertaken in one large midwest urban school district. This district had already developed a special magnet school for the gifted and was seeking options for implementing a gifted education program within each of the district's schools, which would be unique to that school's gifted population and staff needs. It was for that reason the number of years of teaching experience and the amount of prior training in gifted studies were included in the study. Thus, this study was developed to measure the impact of these variables upon teachers' general perceptions of gifted provisions and programs.

Method

A survey of existing attitudes of elementary classroom teachers was undertaken in the spring, 1986. One hundred ninety elementary teachers from 23 schools responded. Table 1 displays the demographics of the survey respondents.

Table 1

Demographics of the Survey Respondents for the Variables of Teaching Experience, Grade Teaching, and Prior Gifted Coursework

Variable	Percentages			
	%	%	%	%
Teaching Experience	1-5 12	6-10 13	11-15 23	16 + 52
Grade Teaching	K-3 47	4-6 36	K-6 17	
Gifted Coursework	Yes 47	No 53		

The survey assessed attitudes toward several categories of gifted programming, encompassing acceleration, enrichment, and grouping options. A 5-point Likert scale was used, with 1 being the least desirable and 5 being the most desirable choice for each of the 10 items on the survey. A small sample of elementary teachers was used in developing and testing the survey before it was administered.

Procedure

The survey was administered to all elementary classroom teachers in 23 schools through the school mail. In the follow up of non-respondents, it was found that full end of the school year schedules kept many from taking time to complete the questionnaire, and kept some principals from distributing it to their staff. However, it was found that non-respondents' answers did not significantly differ from the respondents, when randomly selected follow-up calls were made.

Results

Table 2 displays the descriptive statistics based on the percentage of respondents who answered the survey items.

As can be seen, the respondents rated as least desirable a regular classroom with no gifted provisions, followed by acceleration. As teachers

Table 2

Descriptive Statistics Based on the Percentage of Respondents Who Answered the Survey Items

Item	Percentages				
	Least Desirable			Most Desirable	
	1	2	3	4	5
Regular class No provisions	77	15	5	1	2
Regular class Classroom teacher provisions	11	40	32	10	7
Regular class Resource teacher provisions	9	21	33	27	10
Regular class Resource teacher works with students	6	15	26	32	21
Part-time Pullout	2	4	13	32	49
Part-time Classes advanced in specific areas	4	2	9	33	52
Cluster grouping	21	19	24	14	22
Saturday, after school programs	38	24	23	8	7
Summer School Enrichment	6	9	18	27	40
Grade acceleration	40	22	23	9	6

gain in teaching experience, there is a corresponding gain in the realization that outside help is needed in providing for their gifted students. However, experienced teachers are more reluctant to have an "outsider" working with them in their own classrooms, or to work with a consultant than are teachers with fewer years of classroom experience. More experienced teachers appeared most comfortable with the gifted student being taken outside their classroom for "gifted" instruction for a set period of time each day. Although there is consensus that gifted students have special needs that must be provided for, the general classroom teachers appeared hesitant to take that responsibility on themselves, including those teachers with some experience in gifted education. It was found that while the majority of teachers expressed a willingness to attend future workshops and/or course work in gifted education, no significant difference was found between their answers and those expressing no interest.

ANOVA's run to determine if the variables of teaching experience, gifted coursework, or grade level taught affected teachers' attitudes toward programs will be discussed item by item. Table 3 displays the means and F values for each variable and survey response.

Item 1: Regular class with no special provisions being made.

There is general agreement by all classroom teachers that some special provisions should be made for gifted students.

Item 2: Regular class with some teacher-provided supplemental materials and lessons.

Although the majority of classroom teachers reported that the supplemental lessons and materials provided by the general classroom teacher are inadequate for meeting gifted student's needs, whether because of teacher limitations, time limitations or class size, this realization became more pronounced among teachers with extensive classroom experience. The longer a teacher had been on the job, the less desirable this option. Teachers who have had some experience with gifted coursework, however, were significantly less comfortable with the idea of providing their own materials and lessons, despite the number of years they had been teaching.

Item 3: Regular class with a consultant available to help the classroom teacher provide differentiation.

The availability of a gifted consultant appears to be acceptable, significantly less so, however, to those with extensive teaching experience. Teachers with gifted training were less enamored with this program option than those without such training.

Item 4: Regular class with a teacher consultant available to work with you in your room.

The majority of teachers are willing to have a consultant work with them in their room, although this was not viewed as the most desirable approach for educating gifted youngsters.

Item 5: Regular class with a special resource room and teacher (resource room to supplement regular class experience).

The majority of teachers, regardless of experiential and educational background and grade level taught, reported that grouping gifted students outside the regular classroom with a resource teacher for part of the school day was highly desirable.

Item 6: Regular class with part time special class in the same school (e.g. accelerated math, English).

Classroom teachers highly agree that specific accelerated classes are very acceptable, more so teachers with little classroom and no gifted coursework than those who have had workshops ar taught more than 10 years.

Item 7: One gifted group clustered in a regular classroom at each grade level in the home school.

It appears that there is a wide range of opinion about gifted students being out of the regular classroom completely. Teachers at the higher elementary grade levels tend to be slightly more in favor of clusters.

Item 8: Saturday and/or after school classes.

Gifted students attending additional hours of class time during the school year was not well received.

Item 9: Summer school program for the gifted student.

The provision of school enrichment classes was generally well accepted by all teachers.

Item 10: Acceleration of the gifted student one grade level.

The majority of the general classroom teachers indicated that they do not favor acceleration, but it does appear that the higher grade a teacher taught, the more desirable this option did become.

Discussion

A flexible approach to curriculum and instruction must be created. Because effective programming builds upon previously established services and activities and determines the priorities for new activities, gifted education must be incorporated with other aspects of the total school program (Committee, 1965). There are many specific programs for educating the gifted, but focus should not be on having "a program", but rather on defining and meeting the needs of all students (Swassing, 1984). No school should initiate a gifted program without a definite consideration of the needs of its specific gifted population and school staff, and the ability and enthusiasm of their staff to work effectively within the framework of that program.

Each teacher cannot be all things to all students. It must be recognized that no general classroom teacher can provide all the services that are needed without adequate instructional support services and resources. It was interesting to note that as teachers gain in experience and knowledge of gifted learners, they do come to realize that they cannot do it all. Of major concern in this study was the general trend among all teachers, regardless of experience or training, to consider the pullout program a viable program option and

Table 3

Comparative Means of Attitudes About Program Options as Analyzed by the Variables of Teaching Experience, Prior Gifted Coursework, and Grade Level Taught

Variable	No Provisions		Mainstream Enrichment		Resource Teacher Enrichment		In-class-room Resource Teacher		Pullout		Advanced Classes		Cluster Grouping		Saturday After School		Summer School		Acceleration	
	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F	$\bar{x}$	F
Teaching Experience		0.10		1.40		*3.64		3.04		.58		0.51		1.83		0.42		0.05		1.17
1-5 yrs.	1.27		2.96		3.41		3.86		4.32		4.36		2.32		2.10		3.77		2.00	
6-10 yrs.	1.25		2.77		3.31		3.46		4.35		4.42		3.15		2.23		3.89		2.54	
11-15 yrs.	1.38		2.69		3.36		3.81		4.07		4.14		2.95		2.38		3.88		2.30	
16 + years	1.34		2.50		2.82		3.28		4.24		4.24		3.06		2.15		3.83		2.10	
Gifted Coursework		0.77		*5.49		2.08		3.12		0.00		3.45		0.03		2.99		0.00		0.02
Yes	1.29		2.45		2.97		3.64		4.24		4.11		2.98		2.38		3.84		2.17	
No	1.38		2.81		3.20		3.35		4.23		4.39		2.94		2.06		3.84		2.20	
Grade Level Taught		0.31		0.03		1.32		1.12		1.26		0.11		0.97		0.16		1.61		*5.97
K-3	1.30		2.63		3.13		3.53		4.34		4.29		2.81		2.18		3.86		1.92	
4-6	1.40		2.60		2.89		3.32		4.12		4.21		3.12		2.16		3.69		2.24	
K-6	1.36		2.64		3.24		3.67		4.12		4.24		3.03		2.30		4.15		2.75	

*$p < .05$

acceleration much less desirable. These findings fly in the face of the research previously reviewed. It is obvious that teachers must be systemically exposed to the advantages and disadvantages of these program options if we are going to depend on them to provide adequately for gifted learners. Teachers must have the commitment, knowledge, and resources to direct students to fulfill their great potential. This can be accomplished through inservice training and consultations with all teachers involved with gifted students about the types of programs that will be developed in their school (Shahzadi, 1984; Weiss & Gallagher, 1983; Dettmer,1982). Inservice training for all teachers can result in the use of a greater variety of instructional patterns and higher levels of cognitive questions being asked. This will spill over into the general classrooms where the entire student population will benefit (Nasca & Davis, 1983; Educational Programs, 1957). The study described in this paper has shown that teachers were willing and eager to learn more about gifted education through inservice opportunities provided by their school district. It would be highly recommended that the school district take advantage of this willingness if it wishes to adequately meet the special needs of its gifted population.

The Carnegie Report (1984) stated that "without excellence in education, the promise of America cannot be fulfilled" (p.2). Teachers hold the fate of gifted children, and our future within their hands.

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PAPER NO. 4

Teachers' Attitudes and Practices Toward Reading Acceleration and Enrichment in the Elementary Grades

Mary Ann Gaug
Bloomington Schools
1983

Teachers' Attitudes and Practices Toward Reading Acceleration and Enrichment in the Elementary Grades

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Abstract

Reading acceleration and enrichment are two ways of meeting the needs of gifted readers. Questionnaires were sent to all classroom teachers in a large suburban school district, grades K - 6, asking for their attitudes and if practices on reading acceleration and enrichment activities were necessary. Approximately two-thirds felt high ability readers should be allowed to accelerate, but less than 20 percent of these respondents actually accelerated their high ability reading group. Teachers as a group felt they must teach beyond the basic textbook to enable students to reach their potential, but practices did not conform to these beliefs.

Introduction and Background

This study examined the attitudes and practices of suburban elementary school teachers concerning reading acceleration and enrichment. Reading acceleration is defined as using a reading textbook designed for a higher grade level. Enrichment is the provision of experiences, which extend the activities of the grade level textbook. Gifted readers and high ability readers are used synonymously to describe those readers above average in reading performance.

There is little recent research on reading acceleration. Earlier research (Adams & Ross, 1932; Dohan, 1948; Wilkins, 1936; McCraken, 1960) has shown that gifted children who have been accelerated have greater academic achievement than comparably gifted children who have not been accelerated. More recent programs, such as the Astor Program (Ehrlich, 1979), Rapyht Project (Karnes, 1978), and The Program for Academically Talented Students (Barthe, 1980) have shown the success of acceleration programs which include reading acceleration. As reported by Trezise (1978) general learning characteristics of gifted indicated that gifted readers are ready for certain kinds and levels of instruction earlier and can move through material faster.

An issue in acceleration has been what to do for students reading in kindergarten. Durkin's research (1966) found that after six years of instruction in reading, children who had read before entering first grade continued to maintain their lead in achievement over classmates who were of the same mental age but who did not begin to read until the first grade. Research by Clark (1979) and Calloway (1979) supported early reading experience as beneficial.

Method

Questionnaires were sent to all 215 elementary classrooms teachers in 12 elementary schools in a large suburban area. The 11-item survey assessed teachers' attitudes and practices in reading acceleration and enrichment, as well as collecting data on grade level taught, number of years in teaching, the number of reading and gifted courses, workshops, inservice classes and seminars they had participated in, and how they determined reading textbook placement in their classrooms.

Results

Of the 127 questionnaires returned, eleven were not completely filled out or were returned too late to be included in the analysis. Thus, the final response rate was 54%. Table 1 shows the demographics of the responding group.

Questions asked the teachers and their responses in percentages are presented in the order of items surveyed by the questionnaire. Questions two through five were only answered by those teachers in charge of a high ability reading group. *Question #1* - "How do you determine reading placement in your classroom?" The teacher's responses were as follows:

96.6% - Teacher judgment
73.3% - Textbook publisher's test
68.1% - Continuation from previous year
56.9% - Teacher-designated test

Table 1

Demographics of the Respondents

Variable	f	%
Sex		
Male	14	12.1
Female	102	87.9
Grade Levels		
Primary	58	50
Intermediate	58	50
Reading Coursework		
Yes	102	87.9
No	14	12.1
Gifted Coursework		
Yes	61	52.5
No	55	47.5
High Ability Group Teaching		
Yes	62	57.7
No	54	42.3

$p < .05$

All teachers utilized at least two of the criteria before determining the reading placement of students.

Question #2 - "Do you have any identified gifted in your high ability reading group?"

28.4% - Yes
28.4% - No
43.1% - Not Applicable

In this school district, gifted students were not identified until second grade. Therefore, kindergarten and first grade teachers would not have any identified gifted students in their classroom.

Question #3 - "Do you use a textbook designed for a later part of your grade level with your high ability reading group?"

19.8% - Yes
34.5% - No
45.7% - Not applicable

The school district had adopted a new textbook series for this school year. It was mentioned that because this was the first year using the textbook some teachers started their high ability reading group at grade level. This may not be the case in future years.

Question #4 - "Do you provide enrichment activities for your high ability reading group?"

54.3% - Yes
1.7% - No
44.0% - Not applicable

What was evident in this study was the apparent lack of information on policy toward reading placement. It is necessary for teachers within a building to know and agree on what their building policy is. If a high ability reader is accelerated in second grade but then must stay at grade level in third grade, he/she will probably be repeating material and not be challenged.

Question #5 - "Are you satisfied with the present textbook placement of your high ability reading group?"

46.6% - Yes
7.8% - No
45.7% - Not applicable

Of those teachers responding that they used a textbook for a higher grade level, 13% were not satisfied with the textbook they used, Of those teachers responding that they did not use a textbook designed for a later grade, 15% were dissatisfied. Again the fact that this was the first year using this textbook series, may have influenced some teachers' responses.

Question #6 - "Should high ability readers be allowed to use a textbook designed for a higher grade level?"

62.7% - Yes
30.2% - No
2.6% - No answer

Twice as many teachers preferred to allow students to use a higher grade textbook when appropriate than those who did not. Some respondents who answered yes did add stipulations. They felt it was important that skills at grade level be mastered, not just covered, before moving on to a higher grade level textbook. Also mentioned was the need to make sure there would be challenging reading material available when the child got into sixth grade if all texts had been completed. Some responded that the basic series should be kept at grade level but another series could be used for acceleration. Others responded, however, that if the basic series was not sufficient to challenge high ability readers, they should be allowed to use the next level text.

The most frequently mentioned reason for those responding negatively was that stories at higher grade level would not be appropriate. The stories would involve situations beyond students' emotional and social level. Also mentioned was that although students can read well. there are so many other thinking and reasoning skills that can be broadened.

Question #7 - "Should high ability readers be given enrichment activities?"

100% - Yes

The strong feeling toward enrichment is apparent whether in combination with acceleration or alone.

Question #8 - "Should reading be taught in kindergarten if an interest is shown by the student?"

59.5% - Yes
30.2% - No
9.5% - Not answered

Question #9 - "Should reading be taught in kindergarten if readiness is shown by the student?"

60.3% - Yes
29.3% - No
10.3% - Not answered

Those teachers who did not respond to questions 8 and 9 replied they did not feel well enough informed about kindergarten activities. Of the kindergarten teachers who returned the questionnaire, 50% felt reading should be taught if an interest was shown and 33.3% felt reading should be taught if readiness was displayed. Over two-third (68.3%) of the primary teachers in grades 1-3 and 74.3% of intermediate teachers responded that reading should be taught if an interest was shown by the student. Corresponding percentages were expressed by these teachers that reading should be taught in kindergarten if readiness is shown. Kindergarten teachers did not respond as favorably to reading being taught in kindergarten as did teachers in grades one through six.

Question #10 - "Which reading policy does your building have?"

31.9% - No stated policy

28.4% - Ceiling policy (do not surpass normal grade level)

37.9% - Acceleration (allow students to read in a textbook designed for higher grade)

1.7% - Not answered

Question #11 - "Which reading policy would you prefer?"

20.7% - No stated policy

31.0% - Ceiling policy

41.4% - Acceleration

6.9% - Not answered

It was found that teachers within a school did not all agree on the policy they would like to have for their building. Also teachers within a building, with the exception of one building, did not agree on what the actual practice of their building was.

Discussion

This survey of teachers' practices and attitudes toward reading acceleration revealed, as suspected, that all teachers did not agree that acceleration is the most appropriate way for meeting the needs of gifted readers. However, all teachers did agree that enrichment activities are necessary.

Education must help these students realize their full potential. The research has supported the use of acceleration as one way of meeting the needs of gifted readers. Teachers must be made aware that in reading is a viable option for some gifted students. Enrichment and acceleration can compliment each other and enable gifted readers to pursue their own interests in reading, develop higher level thinking skills, stave off boredom, and master advanced skills.

Since all but 1.7% of those teaching a high ability reading group reported that they provide enrichment activities for their students, it is evident that these teachers feel enrichment activities are an important part of their curriculum. Those enrichment activities primary grade teachers listed as using were language simulations, contracts, creative writing, poetry, drama, higher level questioning techniques, classification, mini units, library research, interest projects, computer activities, centers, controlled reader, SRA reading kits and Junior. Great Books. Enrichment activities listed by intermediate teachers were vocabulary building, Junior. Great Books, listening skills, controlled reader to increase speed and pace, use of newspapers and magazines, critical thinking and problem solving skills, creative writing, special interest projects, research projects, drama, paperbacks, accelerated resource center skills, comparing and contrasting, tutoring younger students, outlining difficult material, analyzing authors' styles and investigating different types of literature. The choices that a teacher of high ability readers makes is dependent on school policy as well as personal preference. The gifted must learn how to apply the skills they learn through reading to the real world. They must be prepared for their responsibility in the future by a challenging and appropriate education now.

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PAPER NO. 5

Which Promotes Creative Thinking: Guided Imagery or Creative Dramatics?

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1985

Which Promotes Creative Thinking: Guided Imagery or Creative Dramatics?

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Abstract

Creatively gifted children were randomly assigned to three groups, a Creative Dramatics treatment group, a Guided Imagery treatment group, and a control. An eight-week treatment protocol was separately designed and administered to the two treatment groups. Post-administration of the TTCT resulted in significant improvement of originality, elaboration, resistance to closure, standard score mean, and creativity index scores for both treatment groups. The Creative Dramatics group were significantly higher than the Guided Imagery, however, on resistance to closure, standard score, and creativity index. The results suggest that even short experiences with guided imagery and creative dramatics may result in improved creative performance.

Introduction

Creative thinking activities comprise a major portion of many gifted programs. The problem with many commercially prepared creativity packages is their structured, linear approach. Alternative activities must be examined to developed holistic intuitive forms of creative thinking.

The right brain production of imagery is essential in creative thinking. Rhodes (1981) found significant correlations between vividness of imagery and the elements of elaboration, fluency, originality, and total creative thinking score on the *Torrance Test of Creative Thinking* (TTCT). Music and imagery activities produced a significant increase in scores on the TTCT (Hershey & Kearns, 1979; Carroll, 1980; Lowery, 1982). Metcalf's study of EEG tracings found the "mental trip" activity to be the most powerful stimulant of brain waves in the right hemisphere (Metcalf, 1975).

The right hemisphere of the brain is activated by emotion, arousal and motivation (Sinatra, 1984). Creative dramatics can provide conditions for such activation (Lehr, 1983). Through play, language and gestures, children demonstrate unique and original thoughts (Verriour, 1984). Moran, Sawyers, Fu & Milgram (1984) have also found a significant correlation between imaginative play and creativity in pre-school children. A study of junior high school student resulted in a significant correlation between dramatic experience and scores on the TTCT (Clements, Dwinell, Torrance & Kidd, 1982).

This study may prove to be a contribution to the field of creativity, because it is designed to trace more closely the relationship among the elements of creativity measured by the TTCT and the treatments of creative dramatics and guided imagery. Unlike much of the previous research, this study will focus on the improvement of creative thinking skills in first grade, gifted students. The research questions asked in the study were:

1) How strong is the relationship between the development of creative thinking and techniques designed to help improve it?
2) Which creative skill improvement technique is more effective in developing creative thinking—creative dramatics or guided imagery?

A post-test only control group study was conducted to examine the effects of guided imagery and creative dramatics as methods for developing creativity in first graders. Because of the holistic nature of these techniques, it was hypothesized that:

1) Both treatment groups will score significantly higher on the TTCT than a control group.
2) The creative dramatics treatment will result in significantly higher scores than the guided imagery treatment.

Method

One hundred sixty-two first grade students in one suburban school district were screened for creativity with the "Dramatics," "Communications-Expressiveness," and "Creativity" scales of the *Renzulli-Hartman Scales for Rating the Behavioral Characteristics of Superior Students.* Children who scored in the top third on these scales were then randomly assigned to one of three treatments. The first treatment consisted of two thirty-minute lessons per week in creative dramatics for a period of eight weeks. The second treatment consisted of an equal time in guided imagery lessons, and the third group, the control, received no special attention during the eight-week period. Figure One describes a sample of protocols for the two treatment types.

Figure 1

Treatment Protocol Samples

Protocol One: Guided Imagery

Relaxation – "Close your eyes and listen to the sounds inside your classroom. Now focus on the sounds within your body. Listen to your heart beat; hear it slowing down as you begin to relax."

Imagery – Activities from *Put Your Mother on the Ceiling* by Richard de Mille were used. Background music accompanied the imagery exercises once a week.

Discussion – Children discussed the images created during the mental trip.

Protocol Two: Creative Dramatics

Warm-up – "Make your body into the largest thing you know. In slow motion, change it into the smallest thing you know."

Group Movement – "We are going on a safari." (Students are guided through a variety of actions on their safari.)

Small group activity – "You decide to change places with your parents for a day. Act out the day's events."

(Activities were adapted from *Development Through Drama* by Brian Way.)

Following the treatment period, all students were given the streamlined version of the *Torrance Tests of Creative Thinking Figural Form A*. The streamlined scoring was designed to provide creative thinking information without the time demands of the earlier version. Torrance (1979) found statistically significant correlations between the streamlined and the regular scoring in the areas of fluency (r = .92), originality (r = .94), and elaboration (r = .92).

The streamlined scoring consists of five norm-referenced measures and thirteen bonus, or criterion-referenced indicators of creative thinking. The norm-referenced areas are *fluency, originality, abstractness of titles, elaboration* and *resistance to closure*. The scores are totaled, then divided by five to obtain the *standard score mean*. The *creativity index* is obtained by adding points from the bonus areas to the standard score mean.

The bonus areas measured on the TTCT include *emotional expressiveness, storytelling articulation, movement or action, expressiveness of titles, synthesis of incomplete figures, synthesis of incomplete lines, unusual visualization, internal visualization, extending or breaking boundaries, humor, richness of imagery, colorfulness of imagery,* and *fantasy*. One bonus point is given for an indicator in a particular area, and two bonus points are given for two or more indications.

Analysis and Results

Table 1 presents the intercorrelations among the TTCT subtests for students who scored highly on the *Renzulli-Hartman Behavioral Scales*. Originality, abstractness of titles, elaboration, and resistance to closure produced significant correlations with both the standard score mean and the creativity index. A significant correlation was also found between elaboration and resistance to closure.

Table 1

Intercorrelations Among Subtests of the TTCT

	Fluency	Originality	Abstractness of Titles	Elaboration	Resistance to Closure	Standard Score Mean
Originality	0.44					
Abstractness of Titles	0.012	0.226				
Elaboration	0.172	0.516	0.518			
Resistance to Closure	0.367	0.520	0.246	*0.623		
Standard Score Mean	0.485	*0.704	*0.671	*0.830	*0.744	
Creativity Index	0.452	*0.693	*0.663	*0.862	*0.751	*0.992

* p< .05

Table 2 displays the results of an Analysis of Variance computed on the three comparison groups. A significant difference between the treatment and control groups was found on all norm-referenced areas of the TTCT. The highest gains were in the areas of originality, elaboration, resistance to closure, standard score mean, and creativity index. Five bonus, or criterion-referenced areas, also showed significant increases for the treatment groups. These bonus areas were emotional expressiveness, storytelling, movement or action, expressiveness of titles, and breaking or extending boundaries.

Table 3 displays data comparing differences between the two experimental groups. Although both treatment groups showed significant differences in their overall scores, analyses of variance were computed to study differences between the two treatment groups. The creative dramatics groups was found to be significantly higher in the norm-referenced areas of resistance to closure, standard score mean, and creativity index, as well as in the bonus areas of emotional

Table 2

Comparative TTCT Score Means for the Creative Dramatics, Guided Imagery, and Control Groups

Norm-Referenced Areas	Dramatics Group Mean	Imagery Group Mean	Control Group Mean	F Value
Fluency	25.11	22.39	19.44	**6.31
Originality	13.06	10.94	6.67	**20.70
Abstractness of Titles	5.11	4.22	2.22	*4.81
Elaboration	8.89	7.83	5.28	**25.55
Resistance to Closure	15.00	11.61	8.94	**18.25
Standard Score Mean	110.94	103.17	89.71	**40.75
Creativity Index	118.56	107.50	91.94	**45.60
Bonus Areas				
Emotional Expressiveness	1.06	0.27	0.05	**16.33
Storytelling	1.83	1.17	0.89	**12.89
Movement	1.33	0.39	0.17	**21.00
Expressiveness of Titles	0.61	0.72	0.11	*3.79
Breaking/Extending Boundaries	1.83	1.33	0.78	**9.27

*p < .05 **p < .01

expressiveness, storytelling, movement, and breaking boundaries. No other significant differences between the treatment groups were found.

Table 3

Mean Differences Between Treatment Groups

Norm-Referenced Areas	Dramatics Group Mean	Imagery Group Mean	F Value
Fluency	25.11	22.39	1.13
Originality	13.06	10.94	4.11
Abstractness of Titles	5.11	4.22	0.71
Elaboration	8.89	7.83	3.95
Resistance to Closure	15.00	11.61	**13.20
Standard Score Mean	110.94	103.17	**8.82
Creativity Index	118.56	107.50	**12.45
Bonus Areas			
Emotional Expressiveness	1.06	0.27	**14.66
Storytelling	1.83	1.17	**19.43
Movement	1.33	0.39	**19.12
Expressiveness of Titles	0.61	0.72	0.16
Breaking/Extending Boundaries	1.83	1.33	**6.69

*p < .05 **p < .01

Table 4 shows significant differences which were found when sex was considered. Males scored significantly higher on the total score of all three *Renzulli-Hartman* scales. Females scored significantly higher in the areas of abstractness of titles, elaboration, standard score mean, and creativity index on the TTCT.

Table 4

Mean Gender Differences

	Male Mean	Female Mean	F Value
Total Renzulli-Hartman Score	75.92	69.67	*4.34
TTCT Fluency	21.54	22.93	0.94
TTCT Originality	9.71	10.63	0.71
Abstractness of Titles	2.79	4.70	*5.63
Resistance to Closure	11.13	12.43	1.54
Standard Score Mean	97.29	104.47	*5.89
Creativity Index	101.20	109.30	*5.82

*p < .05

Discussion

The results of this research suggest that both guided imagery and creative dramatics are effective techniques for substantially increasing creativity scores. It is one of very few studies that have attempted to develop and measure the creative thinking skills in young children. The eight-week treatment period appears to have been sufficient to produce gains in all areas of the TTCT.

High intercorrelations among the individual elements of the TTCT and the creativity index total score administered at the completion of the treatment period supported the effectiveness of the both treatment methods for students already identified as creatively gifted. Perhaps the fact that guided imagery and creative dramatics are based on fantasy experiences and emphasize the creation and embellishment of images helped to account for increased scores in the intuitive aspects of creativity. This may also help to explain the less positive relationship found with fluency and the more general creativity index. There was little emphasis on generating a quantity of ideas. The open-ended nature of both treatments might account for the high intercorrelation found among originality, elaboration, abstractness of titles, and resistance to closure.

Although both treatments resulted in increased creativity scores, the creative dramatics group scored significantly higher in the areas of resistance to closure, standard score mean, and creativity index. Both the standard score mean and the creativity index were important areas of significance. The standard score mean is the average of the norm-referenced areas, while the *creativity index* consists of the *standard score mean* plus points from the bonus areas. Interestingly, the imagery group was not significantly higher than the dramatics group in any area.

Creative dramatics makes use of the young child's need to use all the senses in interaction with the world. Because of its similarity to child's play, these results add further support to the relationship between imaginative play and creativity found in the Moran *et al.* study (1984).

The significantly higher scores in the bonus areas may perhaps be attributed to the design of the creative dramatic lessons. In improvisational drama, the children were allowed to express themselves using their own words and manners. They were encouraged to rely on their intuitive abilities to overcome language barriers and to create both verbal and nonverbal mannerisms. These methods of self-expression appeared to be effective in developing higher levels of creative thinking in general. Practice in improvisational drama utilized the skills of storytelling, movement, emotional expressiveness and breaking boundaries; therefore, it was not surprising that significant differences were found in these bonus areas of the TTCT.

The analysis of variance for gender revealed some interesting differences. Males entered treatment with significantly higher scores on the *Renzulli-Hartman* scales, but females produced significantly higher scores in several areas of the TTCT. Some of these differences may be attributed to variations between the instruments. The *Renzulli-Hartman* scales are behavioral checklists, while the Torrance tests measure creative performance. The higher scores for the males on the checklist could be attributed to their overt behavior, which may be easier for teachers to observe and rate. Females often show a tendency to be more eager to please; thus, they may have taken the treatments more seriously as evidenced by higher scores (Dweck, 1978). The freedom of expression in the imagery and dramatic lessons may have provided a less threatening environment for females to express themselves creatively. A question to be considered in more detail in further studies would be the interactive effects of sex and treatment type.

This study has shown that guided imagery and creative dramatics can be used to increase creative thinking scores. For students who are diagnosed with weaknesses in the areas of open-ended thinking, boundary breaking, or fantasy exploration, these approaches may have merit. Significant differences in creative performance were found in both experimental groups after the short period of eight weeks, thereby, suggesting that even a short introduction to guided imagery and creative dramatics may provide opportunities for creative growth in gifted students. Experience in guided imagery and creative dramatics appears to enable gifted students to utilize unique ways of achieving creative insight and perception. If eight weeks of treatment produced significant results, imagine what could happen if a teacher provided guided imagery or creative dramatics over an entire school year?

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SECTION TWO: SUCCESSFUL INTERVENTIONS

PAPER NO. 6

The Future is Now: The Effects of Studying the Future on Students' Attitudes About the Future

Shanda J. Waller
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1986

The Future Is Now: The Effects of Studying the Future on Students' Attitudes About the Future

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Abstract

The present research compared pretest and posttest responses of gifted and nongifted fourth and fifth grade students on a futures attitude survey to determine how changeable these attitudes might be when information about the future is systematically taught using the *The Future Is Now* curriculum. Analysis of data revealed that the areas in which students positively changed the most were the degree of personal control they perceived in shaping their future, awareness of the importance of global interdependence, and the understanding that the future may be very different from our present world.

Introduction

The last hundred years have been a unique time in human history. In the last hundred years, in the more developed countries, the speed of travel has increased by a factor of 100. Energy resources, despite the energy crisis, have increased by a factor of 1000. Data handling speed has increased ten thousand-fold, weaponry by a factor of 1,000,000, and communications speed by a factor of 1×10^7.

What is especially impressive about these figures is that the past 100 years is a relatively short period of time within the scope of human history. If human history were to be compressed into a one hour period, the trends described above all have occurred essentially within the last tenth of one second of that hour. (Dede, 1979). There are indications that the future will continue to be full of change.

Although there is growing interest in providing instruction about the future, research in the area of future studies instruction is almost non-existent. Thomas & Coan (1978) suggested that a futures-focused curriculum must attempt to affect fundamental changes in students' attitudes or orientations toward the future. How to accomplish this goal and how to know when one has been successful are important issues to consider, however.

There have been a handful of investigations inquiring into students' attitudes and ideas toward the future at a variety of grade levels. In looking at high school students, Toffler (1974) concluded that students tended to believe in dramatic world changes while portraying a conventional future for themselves. In other words, it appears that these students had failed to personalize their expectations about future changes. Likewise, Bostrom's (1977) survey of high school students who were among the top ten in their class revealed that some of the major concerns these students felt they faced after graduation included overpopulation, inadequate resources available for food production, increasing technology, unstable world conditions, and unclear career directions. Ovando (1984) surveyed eighth and twelfth grade students in an Athabaskan Bush Village in Alaska. These students were found to be optimistic and felt they had some control of what happens in their future. Shane (1976) interviewed junior and senior high students and found these students cautiously optimistic despite recognition of drastic changes occurring within their lifetime. These students predicted an increasingly complex, machine-dominated society and felt world membership and increased interdependence among people would be needed for future survival. Tye's (1980) survey of upper elementary and secondary students revealed that students have fairly global attitudes, although deeply embedded ethnocentrism was existent in their images of the future.

In reviewing literature on the impact of futures study on student attitude, there was a major study investigating the effect of the *Family of Man Social Studies Program* (FAMES) on third grade children's views of foreign peoples. Mitsakos (1978) found that "A carefully designed primary grade social studies program with strong global education dimensions can have a significant impact on the formation of attitudes and understanding that children develop toward foreign peoples." (p.15) Mitsakos (1979) took another look at elementary students participating in global education. Once again he concluded that global education can have a positive effect on the way children view other nations and peoples. On the other hand, Thomas & Coan (1978) investigated the impact of the *Making Changes Program* and found it less than successful in altering students' basic beliefs and attitudes about the future.

Traditionally, students have not been systematically exposed to studies of a futuristic or global nature until high school. Elementary school children have been thought to be too young to learn about other cultures and nations. Judith Torney (1972), in a review of the research literature on the socialization of children, suggested that:

> Age 7 to 12 is optimal both for education directed toward attitudinal objectives and for openness about the world...These five years...come before too many stereotypic attitudes dominate the child's view of the world, and are concurrent with the period in which the child's cognitive development is sufficiently advanced to accept a diversity of viewpoints. This is the time in which learning about the larger world from a global vantage should begin. (p.18)

Furthermore, Remy (1975), in a summary of research on international socialization, showed that learning about other nations should begin early in life. Grades 5 through 8 were found to be particularly important for international learning. Lambert & Klineberg (1967) found children ages 10 or less were very receptive to learning about other people. By age 14, they appeared less receptive, and at age 16 they were somewhat suspicious.

There does not appear to be any research that deals directly with the need for gifted students to study the future. Flack & Feldhusen (1983) argued that gifted students have a unique need to learn methods for and to have experience in studying the future because they are most likely to become the leaders of tomorrow. Bleedorn (1980) had also connected futures studies to gifted education.

> Now rapid and radical advances in perceptions of the condition of "Spaceship Earth" and its human family are bringing a sense of urgency to the need for developing abilities to image, predict, and influence the future. That challenge provides a powerful argument for giving attention to programs for able students. Bringing futuristic content and process into the school curriculum is a direct service to existing efforts, both for identifying and for developing gifted and talented capabilities. (p. 25)

Given that attitude change is an important component of a futures study program, more research in this area is needed. The purpose of this study, therefore, was to examine whether or not a structured unit on future studies would positively affect fourth and fifth grade students' attitudes toward the future. Secondly, the study was designed to answer whether or not there would be any attitudinal differences between nongifted and gifted children upon completion of the unit.

Method

Subjects

The participants in this study were fourth and fifth grade students from one elementary school. The fourth grade control group had 113 students and 6 gifted students in a cluster. The fifth grade control group had 112 students and 4 gifted students in a cluster. The fourth grade experimental group had 43 students and 5 gifted students in a cluster. The fifth grade experimental group had 40 students and 6 gifted students in a cluster. The control groups were in self-contained classrooms. The experimental group was in a mixed-grade setting with team-teaching. Informal assessments of the demographics of both the control groups and experimental groups revealed no significant differences in the proportion of boys and girls, grade level, and ability levels between the groups.

Instrumentation

The experimental students participated in *The Future Is Now* curriculum, designed by the researcher (Waller, 1985). This global study of the future is an open-ended, student-centered curriculum which involved the students as active inquirers. The methodology of inquiry used in futures studies and the tools of the futurist were incorporated into the lessons. The following five concepts were the focus of instruction:

1. The people of the Earth are all brothers and sisters, and the Earth is enriched by their differences.
2. The nations of the world are becoming increasingly interdependent.
3. Each generation must leave the planet Earth in at least as good a condition as they inherited it.
4. The future will probably be very different in many ways from the present world.
5. All are responsible for the future; it does not just happen.

The assessment instrument used was the *Futures Attitude Survey* (FAS). This survey was designed by the researcher with parts adapted from the *Futures-Oriented Survey* by Thomas & Coan (1978). The FAS was designed to help students describe their attitudes about the future. For each statement in Part A, students were asked to rank their agreement or disagreement to a series of statements on a 5-point Likert scale (Figure 1).

Figure 1

Items Concerning General Attitudes Toward the Future (FAS, Part A)

1. Even though people come from all different parts of the world, they still share many of the same concerns.
2. We will need to cooperate and be friends with other countries in order to survive in the future.
3. Life in the future will not be as good as it is now.
4. Future inventions will make our lives easier and better.
5. There is little we can do to make the future be the way we want it to be.
6. The way we live will change more and more each year.
7. We don't need to understand why people in different countries do the things they do.
8. Life is getting better year by year.
9. We do have some control over what happens to us in the future.
10. The United States needs help from other countries for many different things such as achieving world peace, supplying more jobs and importing minerals.
11. The future is completely unknown; we have no idea what to expect.
12. People who live in America are better than people who live in other countries.
13. We will do fine in the future without help from other countries.

In Part B of the FAS, students used a 4-point Likert scale to rank how useful they felt each item would be (Figure 2).

Figure 2

Items Concerning Specific Changes in the Future (FAS, Part B)

1. Household Robots
2. High Speed Transportation
3. School Classrooms
4. Computers
5. Speaking a Foreign Language
6. Space Colonies
7. Packaging all Products in Recyclable Containers
8. Books and Newspapers
9. Mile High Cities
10. Soilless Plants Grown in Food Factories

Procedure

The research procedure used in the study was the nonequivalent control group design. The *Future Is Now* curriculum served as the independent variable while student attitude as measured on the FAS was the dependent variable. All students in the sample were given the FAS as a pretest. Uniform instructions were provided for all classroom teachers on how to administer the FAS, and all surveys were administered on the same day under the supervision of these teachers. After the administration of the pretest, the experimental students participated in *The Future Is Now* curriculum materials for 33 hours of classroom time. Five teachers were involved in this instruction. Each taught one concept focus of the five groups that rotated through all five teachers. At the end of the unit, the FAS was readministered as a posttest to both the experimental and control groups. Instructions were again provided for the classroom teachers and the surveys were administered on the same day under the supervision of these teachers.

Results

T-tests were run to determine if the experimental group had any differences between pretest and posttest items, which would indicate meaningful changes in students' attitudes toward the future. With a significance value of $p<.001$, item A-5, dealing with students' ability to shape their future, indicated that more students disagreed with this item on the posttest. Understanding their future, represented by item A-11, also had a significantly greater disagreement on the posttest. The same result was found for item A-13, dealing with global interdependence. Another item addressing global interdependence, B-5, showed more student support on the posttest. The final item reflecting a significant change in attitude was B-6, which dealt with an understanding of what the future will be like. No differences were found between pre-and posttest attitudes among the control group.

ANOVAs were run to determine if gifted students' attitudes about the future differed significantly from the attitudes of nongifted students on the pretest and posttest. Significant differences were found on both the pretest and posttest on several survey items. Table 1 displays these results. Results for item A-11 revealed that gifted students had a more negative attitude toward their ability to understand the future. This feeling grew stronger after exposure to future studies. Nongifted students found recyclable containers, item B-7, less beneficial. Two items reflecting viewpoints toward global interdependence, A-1 and A-10, indicated that nongifted students were significantly more positive than the gifted. Item A-9, which addressed personal control of the future, showed nongifted students with a more positive attitude toward control.

Table 1

Comparative Means of Gifted and Nongifted Students on Pretest and Posttest FAS Scores

Item	Gifted Group Mean	Nongifted Group Mean	F Value
Pretest			
Unknown Future (A-11)	3.00	2.36	5.99 *
Usefullness of Recyclables (B-7)	1.52	2.00	4.37 *
Usefulness of Mile-High Cities (B-9)	3.33	2.74	5.71 *
Posttest			
Worldwide Understanding (A-1)	1.62	2.06	4.57 *
No Control over Future (A-5)	4.29	3.12	15.09 **
Control over Future (A-9)	1.67	2.35	7.72 *
U.S. Dependence (A-10)	1.48	1.96	4.34 *
Unknown Future (A-11)	3.57	2.73	8.55 **

* p<.05 ** p<.01

Although sex difference was not an initial issue, ANOVAs were run to see if this variable did in fact help to explain differences in attitudes about the future. Table 2 displays the significant differences in pretest and posttest scores between males and females in this study. Males felt future inventions would make their lives easier, Americans are better than people from other countries and household robots, high-speed transportation and space colonies will be beneficial. Females felt there was little they could do to shape the future and school classroom will continue be beneficial in the future.

Table 2 also displays the significant differences in posttest scores between males and females in this study. Males continued to feel Americans were better than people from other countries and household robots, high-speed transportation and space colonies would be beneficial. In addition, males now felt mile-high cities would be beneficial. Females still felt school classrooms would be beneficial. Furthermore, females now felt different people of the world share many similar concerns and that books and newspapers would be beneficial in the future. It was interesting to note the items where sex made a significant difference on both the pretest and posttest. These items were A-12, B-1, B-2, B-3, B-6. (See Table 2)

Discussion

When exposed to a futures-oriented curriculum, the areas in which students' attitudes changed the most were the degree of control they would have in shaping their future, awareness of the importance of global interdependence, and the understanding that the future will be very different from our present world. These were three of the five concept areas emphasized in the futures curriculum. The item dealing with shaping one's future indicates students felt there were things they could do to make the future be the way they wanted. This control in the future item did not change significantly for all students. The correlation between controlling their future and shaping their future was almost 0. Students must have perceived these as two very different items. The control item did, however, indicate that a significant number of nongifted students felt they had some control over their future. Students became aware of the types of things the future holds for them. Furthermore, more students became aware that space colonies would be beneficial in the future. This particular item about space colonies may have been emphasized more during the curriculum than some of the other items on the survey that did not show a significant change. Space colonies also may have appeared to be more tangible than some of the other items due to the current space program. Students realized we need help from other countries in order to survive in the future. This finding was reinforced by the increase in the number of students who felt speaking a foreign language would be beneficial. This benefit of speaking a foreign language may also reflect a more positive attitude toward people from other countries and an understanding that their differences can enrich our lives, which was another focus of the futures curriculum.

The pretest showed relatively few differences between the attitudes of gifted and nongifted students toward the future. More gifted students were environmentally aware of the benefit and necessity of using recyclable containers. More nongifted students thought mile-high cities would be beneficial. However, the futures curriculum modified these attitudes. Neither of these differences was significant on the posttest. In the pretest situation, more gifted students reported agreement that the future was unknown and they did not know what to expect. Perhaps this reflects that they actually have thought about their future more and therefore were more aware of what they did not know.

Although the pretest showed more gifted students felt the future was unknown, the posttest results showed that more gifted students felt they now had a better idea what to expect in the future. Apparently, the futures curriculum addressed their strong need to know about the future and helped them to better understand the future. As mentioned earlier, the posttest results indicated more nongifted students felt they had some control over their future. More gifted students indicated that there were things they could do to make the future be how they wanted. These findings further emphasized that all students improved their attitude in regard to their impact on the future. Nongifted students appeared to pick up more from the futures curriculum concerning the concept of all the Earth's people being brothers and sisters. They felt people all over the world share many of the same concerns. This global attitude extended to include the concept of interdependence when nongifted students indicated that the United States needs help from other countries for many things. Although gifted students did not seem to incorporate the concept of all Earth's people being brothers and sisters, they still did become more globally aware. This was indicated in the responses where all students showed an improved attitude by acknowledging our need for help from other countries to survive in the future.

Pretest scores examining the impact of sex on how a student responds, raised some interesting issues. Females' attitudes toward school classrooms may reflect the tendency for females to be more successful in schools. Females' feelings about shaping their future may deal with the issue of control in their past and present home life in terms of which parent is the authority figure. After the futures instruction, this item of shaping the future no longer was affected by sex. The futures curriculum seemed to have helped females realize they can help shape their future. Disagreement with the statement about sex differences for the item, Americans as better people, showed the females in this study may have been more sensitive to issues of human relationships and equality than were males. Males attitudes about future inventions, such as robots, high-speed transportation and space colonies, appeared to indicate there is possibly more of an emphasis on or interest in the mechanical aspects of the future among the males in this research sample.

Posttest scores, examining the impact of sex on how a student responds, further developed the issues raised by pretest scores. Again females felt school classrooms would continue to be beneficial. Furthermore, they felt books and newspapers would be useful. Apparently, the futures curriculum did not sufficiently point out to females that these items were non-futuristic. Females seemed to have retained their sensitive attitude toward the world's people, for they still disagreed more often that Americans were better than people from other countries. Furthermore, they became more aware that all the people of the world share many of the same concerns. Once again, males scored robots, high-speed transpor-

Table 2

Comparative Means of Female and Male Students on Pretest and Posttest FAS Scores

Pretest				Posttest			
Item		x̄	F	Item		x̄	F
Future Inventions (A - 4)	m	2.22	5.23 *	World-Wide (A-7) Understanding	m	2.14	4.53 *
	f	2.49			f	1.93	
No Control Over Future (A - 9)	m	3.06	4.92*	American (A-12) Standard of Living	m	3.99	9.00 *
	f	2.76			f	4.36	
American (A - 12) Standard of Living	m	3.92	5.70 *	Use of High-Speed Transportation (B-2)	m	1.96	5.24 *
	f	4.21			f	2.21	
Use of Household Robots (B - 1)	m	1.93	5.81 *	School Classrooms (B-3)	m	2.05	23.36 **
	f	2.14			f	1.47	
School Classrooms (B - 3)	m	2.18	18.12 **	Space Colonies (B-6)	m	2.03	15.56 **
	f	1.64			f	2.48	
Space Colonies (B - 6)	m	2.16	24.97 **	Books and (B-8) Newspapers	m	1.75	6.76 *
	f	2.73			f	1.51	
				Usefulness of Mil-High Cities (B-9)	m	2.66	6.08 *
					f.	2.95	

* p<.05 ** p<.01

tation and space colonies as more beneficial. The mechanical base in these items may explain such differences. The futures curriculum did not change females' awareness of the potential benefits these objects may bring in the future.

Implications

This research served as an exploratory study of gifted and nongifted students' images of the future and how changeable these attitudes can be when information about the future is systematically taught. In looking at attitudinal differences toward the future between nongifted and gifted children, the size of the gifted sample was too small to draw a firm conclusion. Furthermore, the use of one school district was limiting. Future research should extend this study to other districts with differing demographics.

There needs to be some changes made in the curriculum. Material dealing with the similarities of all Earth's people needs to be improved, and care needs to be taken to include males in these activities. Through these improvements, steps can be taken to deal with a potential male tendency, as indicated in this study, to feel Americans are superior people. Another change should involve the innovations of the future. Females need more help in becoming aware of the potential benefits of mechanical items in our future.

Helping students develop positive attitudes toward the future is of great importance. Beyond an awareness of what the future may be like, students need to realize that what they do today affects that future. They are making an impact on their future by what they do now, whether they realize it or not. Therefore, it is crucial that they begin making some enlightened decisions and choices. This study has shown that teaching curriculum about the future may help some students be made aware of and feel positive about the future. Furthermore, awareness of the future appears to be a prerequisite to improving students' attitudes toward their ability to shape their future. With so few differences found between gifted and nongifted students, there may be an indication that all students would benefit from instruction about the future. It seems especially important to encourage females to become involved in this type of curriculum in order to overcome their feelings of a lack of control in shaping their future. With the implementation of a futures curriculum, teachers can take a positive step toward improving everyone's future.

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SECTION TWO: SUCCESSFUL INTERVENTIONS

PAPER NO. 7

The Relationship Between Perceived Perceptual Strengths and Learning Styles in Academically Talented Junior High School Students: A Case Study

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1986

The Relationship Between Perceived Perceptual Strengths and Learning Gains in Academically Talented Junior High School Students: A Case Study

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Abstract

The relationship between perceived perceptual strengths and actual learning gains in academically talented junior high school students was investigated. The Dunn and Dunn *Learning Style Inventory* was administered to determine student preferences for visual, auditory and tactual/kinesthetic modalities. Three vocabulary units were designed; the first unit was presented visually, the second auditorily and the third tactually and kinesthetically. All units included active learning experiences. Results indicated that those who preferred the auditory mode did show significant learning gains when matched with the auditory presentation. Students who indicated no preference between auditory and visual or tactual/kinesthetic also displayed significant learning gains in the auditory presentation. Students who preferred visual or tactual/ kinesthetic modalities did not display significantly higher gains when matched with their preferred presentation, indicating some discrepancies between reported preferences and actual modality strengths.

Introduction

In an attempt to explain individual differences in ability and achievement, increasing attention is being paid to the cognitive style of gifted students. For the purpose of this article, cognitive or "learning" style refers to the unique and consistent manner by which a learner acquires and processes information. This allows learning style to include preferences of an individual learner for how he/she will acquire information. With so general a definition, research on learning style has taken many directions.

Dunn and Debello (1981) succinctly summarized many of the theories of learning style researchers; Canfield and Lafferty described conditions, content, modes and expectations; Rita and Kenneth Dunn itemized stimuli and elements, Gregorc emphasized distinctive behavior and dualities; Hunt referred to conceptual level; Kolb specified heredity equipment and experience; and Schmeck contrasted deep and shallow processing. McCarthy (Burke & Garger, 1985) noted concrete experience, active experimentation, reflective observation and abstract conceptualization.

James Keefe (1982) has perhaps best summarized research on learning style and brain behavior:

> Knowledge about learning style and brain behavior is a fundamental, new tool at the service of teachers and schools. It is clearly not the latest educational fad. It provides a deeper and more profound view of the learner than previously perceived, and is part of a basic framework upon which a sounder theory and practice of learning and instruction may be built.

Of particular interest to the researcher and practitioner has been the way in which students perceive and gain knowledge through their perceptual modalities. Modalities, the sensory channels through which students receive and give messages, are categorized into three types. First there is the *auditory* in which the learners' voices and ears act as the primary perceptual registers for learning. "Auditory learners" prefer hearing information and directions and are able to remember about 75% of what they hear in a 40-50 minute session. (Dunn, 1983a) They prefer discussions, stories, tapes, lectures and reviewing progress orally. Second there is the *visual* mode in which the learners prefer to see words written down, to see a picture of what is being studied, maps, graphs, overhead transparencies or drawings. They are able to remember 75% of what they see in a 40-50 minute session. (Dunn, 1983a) The *tactual/kinesthetic* mode of learning, the third modality type, deals with learning through touchable learning materials such as task cards, learning wheels, models, projects, acting, floor games and real life experiences such as field trips.

Barbe and Milone (1980) described the channels that are most efficient for processing information as *modality strengths*. Some controversy exists concerning whether a modality *preference* is in reality also a *strength*. According to Barbe and Milone the two are not the same entity; "Few adults and almost no children have a clear picture of the conditions under which they learn best." (Barbe and Swassing, 1979) Barbe has attempted to discern modality strengths through a task rather than a self-report inventory. Dunn and Carbo (1980, p. 381) disagreed with Barbe's conclusions: "Many well-designed and well-conducted studies verify the increased academic achievement that occurs when students are taught through their identified perceptual *preferences*." They cited studies conducted by Domino (1971), Farr (1971) and Robertson (1977).

Differences also surfaced when perceptual development was discussed. Barbe and Milone (1981, p. 378) stated that modality strengths have a tendency to change; primary-age children were more auditory than visual and were least well developed kinesthetically. A modality shift occurs, according to these researchers, between kindergarten and sixth grade when vision becomes the dominant modality and when kinesthetic preferences overtake auditory. A second shift occurs between the late elementary grades and adulthood when vision remains the dominant modality, but audition becomes more important than kinesthesia. Dunn and Carbo (1980) have disagreed with these findings citing Price's study of 3,972 subject in grades three through seven, which verified that the *younger* the child the more tactual/kinesthetic he/she is. The auditory mode becomes stronger in grades five or six.

Dunn and Price (1980) also found that gifted elementary students had high tactual and kinesthetic preferences, but low auditory preferences. Griggs and Price (1980) noted strong visual, tactual and kinesthetic preferences but low auditory preferences in gifted junior high school students. As Ricca (1984) pointed out, students' dislike of lecture may result from an inherent lack of involvement. Also, tactual preferences expressed by gifted may indicate a need to become actively involved with a topic. Dunn and Price (1980) noted that gifted elementary students who took the Dunn and Dunn *Learning Styles Inventory* differed from non-gifted on 6 of the 18 learning style variables, two of which involved perceptual preferences. Gifted students preferred the tactual and kinesthetic modalities and indicated a low preference for the auditory mode. Much classroom instruction on the junior and senior high school level, however, is presented through the auditory mode, apparently precipitating a mismatch between instructional delivery and learner preference.

Researchers who investigated perceptual strengths and preferences in gifted students have also noted that gifted children have well-integrated perceptual strengths. (Barbe & Milone, 1980) Rita Dunn apparently agreed with this observation when she cited studies by Dunn and Price (1980), Griggs and Price (1980), Kreitner (1981) and Price, Dunn, Dunn, and Griggs (1981) that described the gifted as perceptually strong.

The purpose of this investigation was to determine if eighth and ninth grade academically talented students who indicated a perceptual modality preference on the Dunn and Dunn *Learning Styles Inventory* would also show significant learning gains when taught through their preferred modality.

Method

Subjects

A total of 45 academically talented eighth and ninth grade students from a midwestern suburban junior high school participated in this study. The students were from a high potential/high achiever English/Social Studies block program, which based selection on national standardized test scores above the 90%ile, academic performance and teacher recommendation. Table 1 displays the numbers of eighth and ninth graders and their respective sexes. As can be seen, a fairly even distribution was found among the 45 participants.

Table 1

Descriptive Frequencies of Study Participants by Grade Level and Sex

Grade Level	Sex	
	Male	Female
8th	10	13
9th	10	12

Instruments

The Dunn and Dunn *Learning Styles Inventory* (LSI) was administered to all 45 students. The LSI measures 23 variables relating to the affective, physiological and cognitive domains. It is based on a 104 item self-report questionnaire that identifies learning preferences of students in grades 5-12 with regard to environmental conditions and the students' emotional, sociological and physical needs. It incorporates a "consistency key" to reveal the accuracy with which each respondent has answered the questions. (Griggs & Dunn, 1984) The instrument has widespread use for identifying the conditions under which a student is most likely to learn new or difficult information.

A pre-test was designed to test entry level knowledge of the root word content to be used as the treatment variable in this study. The test involved assessment through the visual mode in the form of a pencil and paper multiple-choice test. One-third of the questions were keyed to the visual unit, one-third to auditory, and one-third to tactual/kinesthetic. The posttest was identical to the pretest.

Procedure

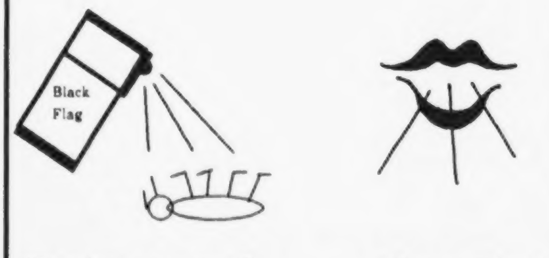
Three vocabulary units, each focusing on 50 different Latin roots and their word families, were designed. The pretest with words keyed to each of the units was administered. The first unit was presented visually, the second auditorily and the third tactually and kinesthetically. Each unit contained an initial presentation in the perceptual modality followed by student involvement in a variety of activities also geared for the particular modality. All subjects participated in each unit on a rotating basis.

The Visual Unit

Fifty roots with related words were displayed on overheads. Students copied these in their notebooks. Using dictionaries, students discovered meanings of words and added these in their notebooks. Students then created original drawings which represented each of the roots. Each student shared ten of these pictures with other students and explained the rationale for the drawing. Then each student wrote an original story which substituted the drawing where the root or word should have been placed and put the answer key on the back of the sheet. These stories were passed from student to student for deciphering as a review exercise. Figure 1 displays sample student work from this unit.

Figure 1

The Visual Presentation



"Repelere = to repel" "Vox = voice"

The Auditory Unit

Fifty roots and their related words were dictated to the students. Background information on the roots were given orally and students recorded the information in their notebooks. Students then created original poetry, jingles or brief stories which featured their assigned roots and words. These products were then presented orally to the class by each of the students. Review for the test was in the form of question-response. Figure 2 exhibits sample student products for this unit.

Figure 2

The Auditory Presentation

Example One:

"There once was a seamstress from Minneapolis
Who created clothes so *diaphonous*
Her clients caught cold
Parading in flimsy so bold
And sat coughing in jail, The laugh's on us!"

Example Two:

"Give me a "V"
Give me an "E"
Give me a "T, U, S!"
What does it spell?
"Vetus"
What does it mean?
"Old!"
Rah, Rah, VETUS!"

The Tactual/Kinesthetic Unit

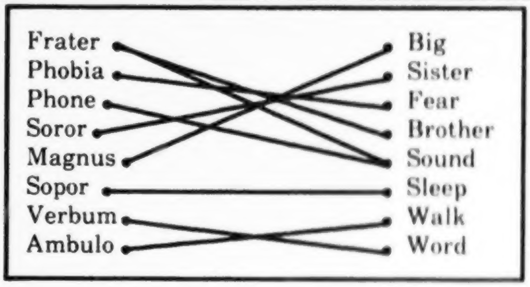
In the initial presentation students were given packets with task cards in different puzzle shapes. When the shapes were matched, students recorded the roots, words and given meaning. Students then worked in groups to design learning circles which displayed the roots and related words. Clothespins were labelled with correct meanings and a key color coded to the clothespin color was placed on the back of the circle. Multiple-choice boards with rubberbands to connect responses were also created. Review activities included the passing of materials among students to solve. An individual presentation of a pantomime of a root or related word was implemented and the group guessed the correct root and then gave the meaning. Figure 3 displays a student learning circle and a multiple choice board produced in this unit.

Analysis and Results

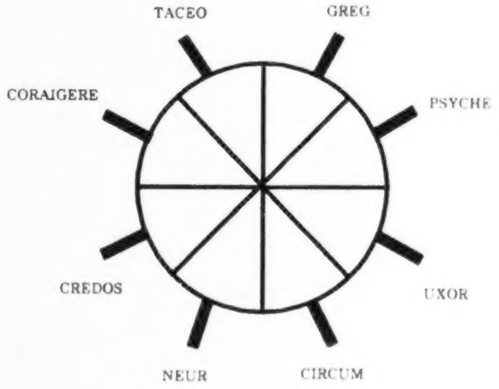
A post-test identical to the pretest was administered at the conclusion of the units to measure content acquisition gains.

Figure 3

The Tactual/Kinesthetic Presentation



Multiple Choice Board



Learning Circle

Table 2 shows the frequency of modality preferences as indicated by the Dunn and Dunn *Learning Styles Inventory*. The greatest number of students showed an equal preference for the visual, auditory and tactual/kinesthetic modalities, appearing to confirm that these gifted students do indeed report integrated perceptual preferences. More students indicated a preference for the auditory mode, than tactual/kinesthetic, and the least preferred was the visual mode.

When individual frequencies of low or high preferences on the LSI were calculated, 5 students indicated scores in the middle range on all modalities, 14 indicated at least one strong preference, and 26 reported strong preferences in more than one perceptual mode. Again, a large number of these students perceived themselves as having strong mixed modality preferences which related to their strong academic performance in their classes.

Table 2

Frequency of Modality Preferences

Modality Preference	Number of Males	Number of Females
A > K	3	9
K > A	3	3
A = K	14	13
V > K	2	6
K > V	4	9
V = K	14	10
A > V	5	9
V > A	4	2
A = V	11	14

A = Auditory K = Kinesthetic V = Visual

Pretest to posttest gains among the modalities were calculated using the ***Minitab Statistical Package*** to calculate ANOVAs. Post-hoc t-tests showed that when auditory gains were compared with visual gains, auditory posttest gains were significantly higher than visual gains at the $p < .01$ level. A comparison of posttest gains in the visual and kinesthetic units showed no significant differences. Table 3 displays these results.

Table 3

Comparison of Post-test Gains by Modality

	$\bar{X}$	t
Auditory gains over visual	8.31 6.31	3.22**
Auditory gains over tactual/ kinesthetic	8.31 5.73	4.36***
Visual gains over tactual/ kinesthetic	6.31 5.73	0.95

*p < .05 **p < .01 ***p < .001

To determine if students' perceived perceptual strengths actually matched with significant gains in learning when taught through their perceived perceptual strength, the *Learning Style Inventory* standard scores for each student in each of the modalities were compared with the posttest gains. Each student whose LSI standard scores showed more than one standard deviation when compared with the other modality standard scores was noted. When the LSI standard scores showed less than one standard deviation as perceptual modes were compared, this was also noted. This information was combined with posttest gains. Two-sample t-tests were used to compare preferences among the modes with the actual gains in learning in each of the modalities.

Results revealed that students who preferred an auditory approach over a visual approach actually did make significant learning gains during the unit that was presented in the auditory mode at $p<.05$ level of significance. When students indicated no preference for auditory over visual, the gains on the auditory sections of the posttest were also significantly higher at the $p<.05$ level. Table 4 shows these results.

Table 4

Comparison of Pre-test/Post-test Modality Preference with Actual Gains

Perceived Modality Preference	Actual Posttest Gain	t Value
Auditory >	7.00	2.10 **
Visual	5.31	
Visual >	9.25	0.71
Auditory	8.25	
Auditory =	8.95	2.66 **
Visual	6.33	

**p < .01

Students who indicated a preference for the auditory modality over the tactual/kinesthetic mode showed nearly significant gains in the auditory test section at $p=.052$. No significant gains resulted for those who preferred tactual/kinesthetic over auditory. When auditory and tactual/kinesthetic gains were compared among students who indicated no preference between auditory and tactual/kinesthetic, the learning gains from the auditory presentation were significantly higher at $p<.001$ level. Table 5 displays these results.

When comparisons were made between gains among those who preferred visual over tactual/kinesthetic, tactual/kinesthetic over visual or no preference for either, no significant gains were noted in any of the categories.

Table 5

Comparison of Pretest/Posttest Modality Preference with Actual Gains

Perceived Modality Preference	Actual Posttest Gain	t Value
Auditory >	8.54	2.05
Kinesthetic	6.08	
Kinesthetic >	8.00	1.23
Auditory	5.83	
Auditory =	8.27	3.61 ***
Kinesthetic	5.54	

***p < .001

Discussion

When students who had indicated a preference on the LSI for the auditory mode were compared with the others, they did make statistically significant gains. In these cases, students' perception of their strength did indeed result in learning gains in the auditory unit presentation. However, no significant gains were made on the respective modal presentations by those students who reported a preference for visual or tactual/kinesthetic modalities. These results suggest that in this study, some discrepancies were apparent between the students' preference and actual strength of performance.

In all cases when the auditory modality and preference for visual and tactual/kinesthetic modalities were equally preferred, the auditory presentation gleaned significantly higher learning gains. It would appear that the auditory presentation when combined with active student involvement is a powerful modality for these academically gifted students. As Schmeck (1980) pointed out, people remember information better when they process it deeply and elaborately. The products created by the students themselves during the auditory unit were apparently very effective.

Another explanation for these results may be that academically gifted students may have developed their auditory skills more fully because it is often the major vehicle used by teachers to impart information. These students apparently capitalize on their mixed-modalities as they adjust to teaching styles. Barbe's contention (1980, p.45) that "Children with mixed modality strengths seem to have an advantage in the classroom," appears to have a bearing in this study. It would also seem that academically gifted junior high students in this study have indeed developed keen auditory modality skills as Price suggested, and were not more visual as Barbe suggested.

More studies are needed to see how often students show learning gains in modes they say they prefer. Perhaps another investigation using the same design but focusing on a concept taught in the three modalities in science or math might produce other results. The same kind of study is also needed for students who exhibit other types of giftedness, for example, creative/productive ability. Other studies may also control some of the mix of modes present in the units of this study. A limitation in this study, for example, was the use of writing in each unit. Likewise, all students participated in the units on a rotating basis, and no external control group was used. Each unit served as the control for the other unit treatments.

An intriguing observation not relevant to this particular study may also deserve further investigation. Among the 45 students who participated in this study, frequent, strong responses by the students were reported for several of the LSI elements: 37 students indicated they were highly motivated by teachers; 41 students reported high persistence, 41 students showed high motivation, and 44 students indicated they were parent figure motivated. Based on the frequent responses by this group, these LSI elements may have implications for identification of a high potential/high achiever group of a similar population and may deserve more study.

A fortuitous result of this study was the marked increase in the posttest scores of this year's vocabulary units compared to similar groups over the last three years. Posttest scores in this more varied approach brought an average of 10% higher posttest scores compared to the previous years. It is hoped that the result was due not only to the variety included in the presentation, but also to the closer match between individual learning styles and instructional delivery.

Even though the reported gains did not match student preferences in all three units, a student attitude survey reflected an appreciation for the variety of approaches and choices available in this root word unit of instruction.

Young people are as unique as snowflakes and educators need to celebrate that diversity. Attention to learning styles and students' involvement in their own learning can contribute to gains in learning as well as foster positive student attitude toward the learning task. Dunn and Debello (1981) appear to be correct in their suggestion that preference can be overcome by motivation and interest. Joseph Conrad in realizing that he needed to "see" what he said was ahead of his time. As young people actively learn, it is hoped that they may be able to see what they think, hear what they understand and touch what they know.

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SECTION TWO: SUCCESSFUL INTERVENTIONS

PAPER NO. 8

Does A Test of Creativity Predict Scores in Future Problem Solving Competition?

Betty Schwermann
Chaska Schools
1984

Does A Test Of Creativity Predict Scores In Future Problem Solving Competition?

Betty Schwermann
Chaska Schools

Abstract

Placing students in teams is a difficult task for coaches of Future Problem Solving. This article looks at a creativity test score as a means for doing this. Students were given the *Torrance Test of Creative Thinking, Form A* (Torrance, 1966). Students were then placed in teams based on the ranking of their creativity test scores. Students were entered in Minnesota's Future Problem Solving competition. Each team's group mean on the creativity test was compared to the team's total score received in Future Problem Solving competition. No significant relationship between the two scores was found. In looking at the subscores, originality was suggested to be more important than flexibility in predicting success in Future Problem Solving competition. Possible implications for gifted education and recommendations for coaches of Future Problem Solving teams are discussed.

Introduction

There is a great deal to be learned about the interaction between divergent thinking scores on creativity tests and scores received in the Future Problem Solving competition process. Anne B. Crabbe, director of the Future Problem Solving, has stated that to her knowledge no one has assigned students to problem solving teams, based on creativity scores. However, to shed light on the potential connection, Crabbe administered the *Torrance Test of Creative Thinking, Figural Form A*, to seventy-nine problem solvers who were members of winning teams in 1982 and they, as a group, demonstrated high creativity test score means: fluency-104.28; originality-112.7; titles-132; elaboration-99.12; resistance to closure-107.29; total-110.83 (personal communication, October 17,1983).

Studies which have explored a connection between creativity test scores and creative problem solving are limited, but support a positive relationship. Many researchers have stated that creativity test scores can be raised by teaching creative thinking skills or creative problem solving skills (Torrance, 1979; Davis, 1970; Hutchinson, 1967; Parnes and Noller, 1973; Macaranas, 1982; Rozik, 1974). Using the *Purdue Elementary Problem Solving Inventory* and creativity worksheets on fluency, flexibility, originality and elaboration, Houtz (1979) found that fluency and flexibility were related in the two measures. Using *Torrance's Thinking Creatively in Action and Movement*, Reisman, Floyd, and Torrance (1981) found that thinking ability, as assessed by this measure, can predict cognitive performance that involves divergent thought.

An investigation of cognitive styles and creativity (Hyer and Rookey, 1972) indicated that response ambiguity style accounted for differences in creative problem solving ability. These studies would indicate a relationship between creative thinking skills and creative problem solving skills.

Based on this data, one would assume that creativity test scores could be used to place students in teams for Future Problem Solving competition. The purpose of this study, then, was to determine the effects of the placement of students in Future Problem Solving teams based on their creativity scores. Since a relationship had been shown to exist between creativity and problem solving skills, it was hypothesized that there would be a statistically significant relationship between the group score in Future Problem Solving competition and the group mean on a creativity test. Related questions considered were:

1. Is there a significant relationship between the teams' creativity test subscores in fluency and the teams' Future Problem Solving competition subscores in fluency?
2. Is there a significant relationship between the teams' creativity test subscores in flexibility and the teams' Future Problem Solving competition subscores in flexibility?
3. Is there a significant relationship between the teams' creativity test subscores in originality and teams' Future Problem Solving competition subscores in originality?
4. Is there a significant relationship between the teams' mean scores on the creativity test and the teams' creativity test subscores of fluency?

5. Is there a significant relationship between the teams' mean scores on the creativity test and the teams' creativity test subscores of flexibility?
6. Is there a significant relationship between the teams' mean scores in the creativity test and the teams' creativity subscores of originality?
7. Is there a significant relationship between the teams' mean scores on the creativity test and the teams' Future Problem Solving competition subscores of fluency?
8. Is there a significant relationship between the teams' mean scores on the creativity test and the teams' Future Problem Solving competition subscores of flexibility?
9. Is there a significant relationship between the teams' mean scores on the creativity test and the teams' Future Problem Solving subscores in originality?
10. Is there a significant relationship between the teams' total Future Problem Solving competition scores and the teams' Future Problem Solving competition subscores in fluency?
11. Is there a significant relationship between the teams' total Future Problem Solving competition scores and the teams' Future Problem Solving competition subscores in flexibility?
12. Is there a significant relationship between the teams' total Future Problem Solving competition scores and the teams' Future Problem Solving competition subscores in originality?
13. Is there a significant relationship between the teams' total Future Problem Solving competition scores and the teams' Future Problem Solving competition subscores in elaboration?

Method

Subjects

Forty-two middle-class suburban eighth graders participated in the study. The students had previously been trained in Future Problem Solving techniques. All were identified by the gifted program as being high academic achievers. This was determined by *Cognitive Ability Test* scores, academic achievement, and teacher recommendation.

Procedure

The *Torrance Test of Creative Thinking, Verbal Form A* (TTCT) was administered to the forty-two eighth graders. The students were then placed in eleven groups, based on creativity test scores. A group mean for creativity test scores was established for each group, with the four students receiving the highest creativity test scores being placed in the first group, the next four highest scores in the second group and so forth until all eleven groups were formed. Due to uneven numbers, the lowest two groups had three members. Group means for fluency, flexibility and originality were also computed. The students then completed the second and third problems established for the 1983-1984 Future Problem Solving competition. Five groups were recommended by their coaches to have their third problem submitted to the state Future Problem Solving competition. The other six teams also had their third problem sent to judges of the Future Problem Solving Bowl, but were not entered into the formal competition because of entry number limitations. Scores from the Future Problem Solving competition which were analyzed for this study were those contained in Alternative Solution. The items were: (1) fluency, the number of responses relevant to stated problem; (2) flexibility, change in focus of thought; (3) originality, unusual, original solutions; and (4) elaboration, completely described solution, or any combination of three or more of who, what, where, when, how, why specifications in solution description.

Results

Data were analyzed using the Pearson Product Moment coefficient of correlation procedure (Hopkins, 1980). With regard to overall hypothesis, it was found there was no significant relationship between the group score in Future Problem Solving competition and the group mean on the TTCT ($r=0.22$). With regard to related questions, the following results were found:

1. There was no significant relationship between the teams' creativity test subscores in fluency, flexibility, and originality and the teams' Future Problem Solving competition subscores in fluency ($r=0.07$), flexibility ($r=0.08$), and originality ($r=0.28$).
2. There was a significant relationship between a team's overall creativity test score and the subscores of fluency ($r=0.98$), flexibility ($r=0.81$), and originality ($r=0.99$).
3. There was no significant relationship between the teams' mean scores on the creativity test and the teams' Future Problem Solving competition subscores of fluency, flexibility, and originality ($r=0.00, 0.18, 0.22$, respectively).
4. There was a significant relationship between a team's total Future Problem

Solving competition score and the teams' Future Problem Solving subscores in fluency (r=0.60), flexibility (r=0.56), originality (r=0.76), and elaboration (r=0.63).

Discussion

This study failed to support the hypothesis that a significant relationship exists between the group scores in Future Problem Solving competition and the group mean on the TTCT. This suggests, perhaps, that the verbal form of the *Torrance Tests of Creative Thinking* may not be useful as a tool for selecting teams for Future Problem Solving competition. Perhaps a significant relationship could be found using the *Torrance Test of Creative Thinking, Figural Form*, as was previously found by Crabbe (1983). Although the verbal form appears to sample behavior more closely related to creative performance in Future Problem Solving, it did not predict such performance in this study. Further study is warranted to determine major differences between the two forms.

No significant relationship was found between the teams' subscores in fluency, flexibility, and originality on the TTCT and the teams' Future Problem Solving competition subscores in fluency, flexibility, and originality. This suggests also that perhaps different types of fluency, flexibility, and originality are sampled by the two creativity criterion measures. A key ingredient in Future Problem Solving is the area of "implications" (Guilford, 1977). It is quite possible that the type of fluency, flexibility, and originality measured in Future Problem Solving competition is that connected with the ability to be fluent, flexible, and original with regard to implications. This would help account for the lack of significant correlations. A significant relationship was found between the teams' mean scores on the *Torrance Test of Creative Thinking*, and the test's subscores of fluency, flexibility, and originality. One might expect this of a test with good construct validity and internal consistency.

With regard to the teams' mean score in the *Torrance Test of Creative Thinking, Verbal Form A* and the teams' Future Problem Solving competition subscores of fluency, flexibility, and originality, very little relationship was shown. This suggests that total creativity score is not a good predictor of subscores in these areas of Future Problem Solving competition. Positive relationships were found between a team's total Future Problem Solving competition score and the teams' Future Problem Solving subscores in fluency, flexibility, originality, and elaboration. Such positive correlations are to be expected. It is interesting to note, however, the order of these correlations (originality 0.76, elaboration 0.63, fluency 0.60, and flexibility 0.56). This suggests that originality may be more important than flexibility in Future Problem Solving competition.

Implications for Gifted Education

While teachers may wish to use the *Torrance Tests of Creative Thinking, Verbal Form A* as an indicator of a degree of creativity, this research suggests that the test should not be used as the sole criteria for placing students in teams for Future Problem Solving competition. Since "implications" (Guilford, 1977) may be a factor in the lack of significant correlations, coaches of Future Problem Solving may want to emphasize training in implications (extension or extrapolation from what is given, predictions, relations). In preparing teams for Future Problem Solving competition, coaches may also wish to emphasize training in originality, as this study suggests that this process is more highly correlated with success in Future Problem Solving competition.

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SECTION THREE: GIFTEDNESS AND FAMILY RELATIONSHIPS

PAPER NO. 9

Will Women Ever Get Out of the Kitchen? Changing Perceptions Among Adolescents and Their Parents on Women's Roles

Linda Kuipers
Rosemount - Apple Valley Schools
1987

Will Women Ever Get Out of the Kitchen? Changing Perceptions Among Adolescents and Their Parents on Womens' Roles

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Abstract

A case study of 33 students and their parents was conducted to determine if the two generations hold similar attitudes toward women's roles. Significant differences were found between the generations, with parents feeling much more strongly than the students that women should work outside the home, be given leadership positions, have the same freedom of action and equal pay as men. Mothers and daughters differed significantly from fathers and sons in dispelling the image of women as flighty and emotional, and in feeling that men should share in household responsibilities. Likewise, the females of both generations expressed much more strongly than the males that women should be given increasing responsibility for leadership and equal pay. The implications of these differences for educational practice are discussed.

Introduction

Gifted education has progressed to the point that specific ways of serving its subpopulations can be addressed. Researchers are presently focusing on giftedness among the learning disabled, handicapped, minority populations and the underachieving. Gifted adolescent females represent a special population that crosses all these areas. Likewise, there are a number of special issues and needs that directly affect the development of the young, gifted girl. Young women are admonished to go out and make something of themselves while at the same time the criteria for that "something" continues to shift and change. Educators provide for their development through the elementary years with as equal a foundation in academics and as unbiased an attitude to their future as possible (admittedly, there are gross exceptions to this statement.) Educators in the middle and high school years may have the same goals but must also deal with physical, social, and emotional development issues. Many bright girls "go underground" with their abilities at this time (i.e., stop making an effort to produce academically), in order to find an acceptable social group. The girl who continues to excel and produce may find herself isolated or relegated to a group that doesn't share her other interests.

Women's motivation to achieve has been a popular topic for the 1980's. The press is often concerned with the tremendous gap between acknowledged fair treatment standards and the practice in reality. The courts have dealt with affirmative action cases, and the bookstores display shelves full of encouragement and tips for female success. Yet women continue to be underpaid and subtly excluded from more prestigious positions.

The motivation issue is extremely complicated with many side avenues to explore. Even the judgment of "successful achievement" as monetary and/or hierarchical is debatable. Such criteria undermine nurturance and personal satisfaction as indicators of successful achievement for the woman who chooses to spend her time facilitating the growth of husband, children, and friends.

The achievement issue becomes especially pertinent when coupled with the potential of the gifted female adolescent. It is assumed that this nation's present generation has been reared and educated in an environment with the least sex bias in history. However, mixed messages of what constitutes women's roles in society continue to be given. The early teenage years, particularly the middle school grades, appear to be a time of tremendous role change. The homogeneous "child" role with some boy/girl emphasis evolves during these years into distinctly separate male/female populations which begin to practice for their respective adult roles. Is the female adult role forecast to be open and opportunity-filled? Have we truly "come a long way, baby," or is that expression in itself a paradox, with the *baby* emphasizing the dependency and chattel role of traditional womanhood? What perceptions do early teens have of the adult female? Do the girls view their possibilities differently from the boys and/or their parents? Is there a different outlook between the parents of girls and boys? Research has still not answered these questions satisfactorily.

This difficult period may also be a time when career doors begin to close off possibilities for students who don't maintain and build math and science skills. Educators recognize the importance of keeping bright girls growing in these areas; however, it is wasted rhetoric if the individual herself does not believe she has options which will include those skills. If the ability to achieve comes from the power to attain what one has the potential to accomplish in life, then we need to look at whether young girls are seeing their future role from a positive, liberal view or from a more traditional, constrained one.

The bulk of the literature on development of female perceptions toward adult roles and achievement appear to be opinion based rather than supported by research. What research there is focuses on the areas of achievement motivation and internal and external barriers to success. Although women and achievement have been written about by sociologists, psychologists, self-help authors and personal-catharsis authors, there is little, by comparison, which is research-based, and even less directed to the early adolescent girl.

The earliest study is the classic Terman work, beginning in 1921 with 1,528 children averaging 11 years of age. Data were collected five times during the subjects' lives. The fifth time Sears and Barbee (1977) focused on the life satisfactions and careers of the Terman women who were then in their early 60's. They concluded that the childless, career-oriented women among this group showed more satisfaction with their lives than other women. Childless, head-of-household homemakers were the least satisfied. This would appear to indicate that bright, married women can be fulfilled without the traditional child-bearing and raising role, but that they must look to sources other than housekeeping toward which to direct their energies.

Although there are volumes of research on achievement motivation, only a small percentage of it includes women and very little centers on gifted women. What few studies that do exist have produced such contradictory results that researchers have omitted them from subsequent projects (Clark, 1979, Macoby & Jacklin, 1974).

Kerr (1985) reported that the second major study on gifted girls and their development was by Kaufman (1981) who tracked down and sent questionnaires to 501 Presidential Scholars. The highly gifted women in these study were two decades younger than the Terman women in the Sears & Barbee study. These women had achieved more professionally but were still grossly underpaid compared to the men. Interestingly, their marriage and childbirth rates were low compared to the general population.

Card's study (1980) isolated two factors which appear to affect the gender differences in achievement in women born after 1945. The first is socialization, which has been recognized at least as far back as Mead's research in the 1930's. Socialization is thought to influence attributional differences between men and women, with females more likely to relate their successes to luck and their failures to ability, whereas males would more likely relate success to ability and failure to bad luck. Card's second factor has suggested that each person has a limited source of energy. Thus, women in the traditional roles of marriage and parenthood don't have the time or energy to devote to the roles of student or professional. In follow-up studies (1980), Card and her colleagues collected data on 4,035 Project Talent high school students. An achievement potential was devised to measure and analyze each student's status in high school. When actual achievement was measured at six to ten years after the initial analysis, those women with the initially highest potential showed the greatest lag behind the highest potential men. Card concluded that the hindering effects of marriage and especially the number of children born to these women seemed to drain their energy for career development.

Groth (1969) studied the phenomenon of declining achievement in gifted women. Subjects drawn from different age groups were asked to state three wishes. Their responses were applied to Maslow's hierarchy of needs. Groth concluded that the women appear to have strong self-esteem needs until age 14, when the need for love and affection becomes paramount. This need remains dominant until the age of 40 when self-esteem again becomes a motivating force. Men, however, maintain a need for self-esteem and interest in achievement until retirement.

Rodenstein & Glickhauf-Hughes (1979) studied the conflict of career and family. These researchers focused on the "integrators," women who successfully combined both. Their results concluded that career-focused women had more scientific interests, homemakers had more social interests, and the integrators had both. This study may suggest that gifted women don't *have* to make a choice between career or family.

Other research focuses on the factors which affect a young woman's development from gifted girl to productive, gifted woman. The literature can be divided into two areas: external and internal barriers.

External Barriers

External barriers include bias and sexual discrimination. When a young woman chooses a non-traditional career, she has to be prepared for the overt and the subtle discrimination that she eventually may encounter. The higher she goes in her pursuits of her own excellence, the fewer

Socialization of young women is the paramount external and internal barrier to their success. Blaubergs (1978) has suggested that the more essential a role is to the continuation of society (such as traditional wife and mother), the more negative the feelings that will be generated by ambivalence toward that role. Such feelings underscore the devaluation of women's accomplishments and anonymity (Blaubergs, 1978).

Research on teachers and their differential treatment of male and female students has been consolidated in a paper by the Association of American Colleges Project on the Status and Education of Women (1982). Women's education was looked at from early childhood through graduate school, (from traditional to non-traditional fields, from overt undermining and sexual harrassment to subtle questioning strategies, and expectations of teachers based on gender, not ability.) When the very institution that is charged with development of potential appears to be gender-based, it is a wonder that any high achieving women emerge.

A final external barrier is monetary. The woman who delays her career for family will never catch up economically. Many women continue to choose temporary or "disposable" careers (clerical, caretaking, teaching) or must pursue their professions on a part-time basis due to family demands. The "pink collar ghetto" that results when a homemaker divorces has received much attention in the popular press in the last years.

Internal Barriers

The internal barriers to successful achievement among women include socialization as well. The most well-known early study would be Matina Horner's (1974), commonly referred to as the "fear of success" syndrome. Horner concluded that bright women will avoid success because of the fear of non-acceptance by peers. The characteristics of gifted girls include a heightened perception of awareness of people and expectations (Clark, 1979). They quickly learn what society expects of them. Conformity becomes a seductive promise for happiness. Blaubergs (1978) has suggested that internal barriers have been overemphasized and may even be myths. Other researchers have acknowledged these barriers as being crucial to the understanding of the issue.

White & Lewis's (1984) research in Laramie, Wyoming, with junior high school students and their parents provided the basis for this study. The researchers replicated earlier work by White & Lukasik (1974), comparing student responses to parent responses, utilizing the *Role of Women* survey. The 1984 responses proved to be significantly less traditional ($p < .05$) for the boys and mothers and fathers, suggesting that some changes have occurred in general views toward female roles in the past decade. However, there was no difference in the girls' scores for the same period. This seems to indicate that the girls have undergone no change in perceptions of the way they visualize their future. White & Lewis based their conclusions, however, on comparisons of total score on the *Role of Women* survey. Individual survey items were not analyzed for strength of response.

The White & Lewis studies have shed considerable light on the role of perceptions held by young teenage girls, but more research is needed in order to understand fully their attitudes toward achievement in school and life. What research there is does not explain whether or not the dynamics of family work to shape a young girl's attitude. Educators need a better understanding of this population and how its perceptions are formed in order to plan realistically and to influence their career and achievement decisions.

The purpose of this study was, therefore, to observe and measure the attitudes of middle school students and their parents regarding the roles of women. Of particular interest were the following questions:

1. Do females and males differ in their perceptions of female roles?
2. Do adolescents of the present generation differ in their perceptions of female roles from those of their parents?
3. Do the parents of girls perceive their roles differently than the parents of boys?
4. Do gifted adolescents differ in their perceptions from non-gifted adolescents?

Method

A case study was conducted at a middle school in a suburban district in an upper midwest metropolitan area. Of the three middle schools in this suburb, this particular one had the broadest range of economic background. The suburb itself was a rapidly growing "bedroom community" with a high percentage of two income families. A random selection of students in grades six, seven and eight were chosen with half from the gifted and half from the non-gifted population. Sixty students and their parents were invited to take part in a survey measuring their perceptions of the roles of women. A total of 33 student responses were collected in addition to responses from 21 sets of parents. The student surveys were administered at school by the researcher. The parent surveys were taken home and returned by mail. The instrument used was the 20-item opinionnaire developed by Lukasik (1974), used previously in the Laramie study (1974, 1984). Ten items were phrased in positive terms and ten in

62

the negative. The items were written to be easily understood by the middle school students and were based on the *Attitudes Toward Women Scale: Short Form* (Helmreich, 1975). Item content concerned career choices, physical ability, emotional stability, home and family responsibilities, monetary rewards for work, educational options, and personal rights. Responses were in the form of a Likert Scale (1 = "strongly disagree," to 5 = "strongly agree"), with scores ranging from 20 to 100. Raw scores were used in all calculations.

Table 1 breaks down the sample into the groups used in analysis.

Table 1

Dispersement of the Sample into Comparative Groups

Students	Males	Females	Total
Non-gifted	8	8	16
Gifted	10	7	17
Total Students	18	15	33
Parents	**Fathers**	**Mothers**	**Total**
Non-gifted	9	9	18
Gifted	12	12	24
Boys	10	10	20
Girls	11	11	22
Total Parents	21	21	42

Analysis and Results

A one-way Analysis of Variance was computed to determine if there were differences in the manner in which males and females, regardless of age, responded to the survey. Table 2 displays the significant differences according to sex.

Table 2

Comparative Means of Males and Females in Their Responses to the Role of Women Survey

Survey Item	$\bar{x}$ Males	$\bar{x}$ Females	F
2 - Right to pursue career of choice	4.62	4.94	8.64 **
3 - Women too emotional	4.00	4.58	18.79 ***
9 - Husband share duties	4.44	4.83	11.61 **
15 - Leadership	3.72	4.19	7.85**

*p < .01 **p < .001

ANOVA'S were also computed to determine any differences in the responses between the combined male/female student sample and the responses of the combined parent sample. Table 3 represents the significant results comparing students to parents.

Table 3

Comparative Means of Students and Parents in Their Responses to the Role of Women Survey

Survey Item	$\bar{x}$ Students	$\bar{x}$ Parents	F Value
4 - Women take jobs	3.76	4.21	5.97 *
12 - Pay	2.94	3.88	16.10 ***
15 - Leadership	3.64	4.19	10.87 **
19 - Freedom of action	3.70	4.21	5.31 *

*p < .05 **p < .01 ***p < .001

The parent sample was also divided into four groups; mothers of girls, mothers of boys, fathers of girls and fathers of boys, and ANOVA'S were computed on the responses of these groups. Table 4 displays the comparisons of the significant results in the responses of the parents grouped by their own sex and sex of their children.

A summary of the results focusing on the specific items which generated significant results follows. Four of the survey items produced significant results in two of the comparisons. The following three items brought significantly stronger responses from the female population than the male in both the first comparison and the last comparison. Women strongly disagreed ($p<.001$) with Item 3: "Women are too emotional, flighty, and undependable to be good managers." Item 9:"When a wife works outside the home, the husband should share some of the household duties," drew significant agreement from the females ($p<.01$) in gender comparisons and significantly stronger agreement ($p<.001$) among mothers when compared with their children. Responses of the mothers of boys were more likely to agree ($p<.01$) with item 15: "Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day," and the means of the females expressed even stronger likelihood of response ($p<.001$) than the means of the males.

The fourth item to bring a significant response in two of the analyses was item 12: "Male workers should receive more pay than female workers even for identical work." This item was more likely to bring stronger agreement ($p<.01$) for the mothers of boys in comparing means of the parent groups and was significant at the $p<.001$ level when comparing the agreement responses of the students to the responses of the parents.

The second comparison, students versus parents, had two items which were significant at the $p<.05$ level. Item 4: "Women take jobs from men and thus contribute to unemployment" and item 19: "Women should not expect to go to exactly the same places or to have quite the same freedom of action as men," produced stronger disagreement in the adults than students, which indicates a more traditional line of thinking among young people in these areas.

Items significant at the $p<.05$ level for the comparisons of the four parent groups were, again Item 15, and the following: Item 5 "Many jobs are too rough and demanding for women," Item 6 "Women are absent from work more and change jobs more frequently than men," both of which brought stronger disagreement form the mothers of boys. Item 7: "With proper training, women have the ability to fill professional and technical positions where shortages now exist," Item 13: "Women should have the opportunity to continue their education after high school if they choose to do so," and Item 16: "Failing to use women in all jobs and professions of the work force is one of the greatest wastes of a natural resource in this country today," produced stronger agreement, again, from the mothers of boys.

Discussion

There were a number of limitations in the survey itself which need to be acknowledged. The length of 20 items is short and may have produced a ceiling effect. Although the ceiling effect was not noted by previous researchers, the very fact that the *Role of Women* was originally written for junior high school students may have resulted in perceptions of transparency by the adult population to which it was also administered.

The results of the survey do indicate fairly strongly the gap between the genders on their views of the roles of women in our society. The differences in opinion are ones of degree. The assumption of a more liberal viewpoint on the part of contemporary males and females is no doubt a valid one, but an interesting finding was the intensity of reaction to sexual bias. The females regardless of age reacted more strongly to this form of discrimination.

Surprising were the results of the comparative responses of students and their parents. It might have been expected that the idealism of adolescence, regardless of sex, would have led to stronger reactions against sexual bias among the students in the sample. This proved not to be the case: students were more likely to agree with their parents than they were to agree with sexual counterparts of their own generation. Perhaps idealism is no match for reality with its decisions and sublimated dreams, or perhaps adolescents are more strongly influenced by their upbringing on this issue than is evident with other philosophical and moral issues.

The most surprising results, however, were in the comparison of the parents groups. In every significant finding, it was the mothers of the boys who reacted with the strongest responses. Speculation on the dynamics of this is endless, and

Table 4

Comparative Means of Mothers and Fathers of Boys and the Mothers and Fathers of Girls in Their Responses to the Role of Women Survey

Survey Item	$\bar{x}$ Mothers of Girls	$\bar{x}$ Mothers of boys	$\bar{x}$ Fathers of Girls	$\bar{x}$ Fathers of boys	F
3 – Emotions	4.55	4.80	4.18	3.90	6.83 ***
5 – Rough jobs	2.82	4.40	3.46	3.30	4.44 *
6 – Women absent	3.18	4.10	2.91	3.40	3.42 *
7 – Proper training	4.55	4.90	4.55	4.20	3.12 *
9 – Husband duties	4.73	5.00	4.64	4.20	6.64 ***
12 – Equal pay	4.82	5.00	4.64	4.20	4.60 **
13 – Education	4.91	5.00	4.82	4.50	3.59 *
15 – Leadership	4.45	4.50	4.10	3.70	4.39 *
16 – Wasted resource	3.45	4.30	3.64	3.45	3.32 *

*p < 05 **p < 01 ***p < 001

research in this area would be fascinating. Could it be that women feel the bonding of their sons and husbands as isolating or undermining their own position in the family? Or might these findings suggest that women with sons feel the need to take a stronger stance to prepare their boys for their future relationship with women?

Although this study aids in an understanding of differing perceptions of roles between men and women of all ages, it cannot answer satisfactorily whether or not young girls, gifted and non-gifted, know the importance of pursuing their potential. By advising young gifted girls of the real possibilities open to them, preparing them to plan carefully for their futures and instilling in them the belief that they can have fulfilling lives professionally and personally, we can perhaps prevent future generations of bright, older women from looking back wistfully on their lives. Educators must find additional ways to acknowledge the realities of the decisions young girls will be making and give them awareness of the options that will enable them to integrate careers and family nurturance.

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PAPER NO. 10

The Gifted Child in School and at Home: Parents' Perspectives

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1986

The Gifted Child in School and at Home: "Parents' Perspectives"

Susan Cathey
Fridley Schools

Abstract

One hundred ninety parents of formally identified gifted students were surveyed on their perceptions of current and desirable gifted program options and their concerns about family needs regarding a student's giftedness. A positive attitude toward a school's attempts to provide programs was found. Parental concerns about giftedness centered around helping their children overcome a fear of failure and a fear of not being accepted by others. Results may provide valuable information for areas of concern to be addressed through parent support groups.

Introduction

What kind of report card would parents give your gifted program? How well are schools succeeding in meeting the needs of the gifted child as part of a family unit? As a parent, teacher and student of the gifted, I wondered if the important lines of communication between home and school were strong in this area. Kaufman and Sexton (1983) advocated a partnership approach to education. Their research supports the benefits to children of consistent, systematic parental participation. They found some areas which should be considered as possibilities for improved home-school cooperation: (1) identification; (2) behavior management; and, (3) home enrichment activities which are compatible with school programs. Information provided by the study's open-ended questions indicated " a real need for arriving at a match between home and school attitudes toward programs for the gifted" (p. 51). Colangelo and Dettman (1983) reviewed the research in this area and concluded that parents are interested and responsive to suggestions for more active participation, but that schools do not always provide adequate direction.

Charles McClain (1980) identified five stages parents experience when they have children in gifted and talented programs: (1) *realization* that there are other parents facing similar situations; (2) *education*, as they begin to acquire some basic information on the subject; (3) *venting*, as they feel they have found some solutions but meet frustration on many fronts; (4) *more education*, such as conferences, workshops and college courses; and (5) *action*, both in the home environment and in dealing with schools. Weiss and Gallagher (1983) concluded that one of the most significant changes in the area of giftedness that has taken place in the last twenty years is the growing tendency of parents of these children to join together to try to ensure stronger educational programs for their gifted students.

Hanson (1984) reported one study done at Towson State University involving 4-, 5-, and 6-year old students recommended for a summer Saturday gifted program by their parents, which showed a high level of reliability in parental identification, as confirmed by subsequent individualized testing. Many of those parents held meetings while their children were in classes. They were eager for guidance and interested in all the advice the teachers and program director could offer. They were concerned that their schools would not provide advanced instruction in specific areas to meet their children's needs. Feldhusen and Kroll (1985) found that of the 385 parents of gifted children they polled, 63 percent indicated that their children would be interested in attending a full-time school for high ability children. Those parents did not feel the needs of their children were being met in their present school system.

The concerns of parents for the educational needs of their children and their reactions to the gifted program in place in a midwest suburban school district provided the focus for a survey which would identify areas in which families would like more information or support from parent groups.

Method

A questionnaire, the *Parent Program Survey* (PPS), was developed, validated and sent home with 475 identified high potential students in grades two through twelve in eight elementary and four secondary schools in a small midwest suburban district. Questions fell into two general groups, those which were concerned with current or desirable school programs and those which asked about feelings and needs of family members regarding the child's giftedness. The last item on the questionnaire was an open-ended opportunity to list the respondents' three greatest concerns in this area. One hundred ninety responses were returned. Of these, 77 came from parents of elementary students, 46 from middle school (grades 7 and 8), and 67 from senior high. Figure 1 displays the questionnaire developed for this survey.

Results

When the respondents were asked whether or not they thought a special program was necessary to meet the needs of gifted children, 78 percent indicated that they did. Question 6, as shown on Figure 1, also asked for reasons for their choice. Providing a challenge and preventing boredom were frequent responses. Although 81 percent of the respondents said that their gifted children liked school, only 44 percent felt that they were usually challenged. Another concern surfaced among parents answering this question both negatively and positively, that of the peer group. Many felt it was vital to have students of like abilities grouped, while others feared that a gifted program would separate students too much. Many responded that a special program would not be needed if class sizes were small and teachers were adequately trained to meet students' needs on an individualized basis.

The PPS described six program options and asked participants to rank them. Table 1 shows the result of this ranking. When analyzed by grades, cluster grouping was most popular with parents of third through fifth grade students. The resource room/pullout option became a less frequent choice as the age of the students increased. Generally, parents of boys chose this type of program significantly more often than parents of girls. Not surprisingly, advanced placement was most often chosen by parents of juniors and seniors. An interesting finding was that independent study was a significantly more frequent choice with parents of ninth grade students than at any other level.

A majority of parents (77 percent) believed that funding for gifted programs should come form a combination of sources: the school district, state, and federal government. Only 9 percent felt that the district should be solely responsible for paying to educate their high ability students. A few suggested that parents of these students or private companies should be asked to pay.

Seventy of the surveys were completed by mothers, 20 percent by fathers and the rest by someone else or by both parents together. Fathers were more likely than mothers to feel that some kind of support group for parents of gifted children would be helpful. They were also less likely to know of sources for information on giftedness.

Figure 1

Items on Parent Program Survey

Item	Content
1.	Who first identified your child as gifted?
2.	How old was your first child when first identified as gifted?
3.	Is your child participating in a gifted program of some kind throug the school at this time?
4.	How does your child feel about participating in a gifted program?
5.	Did you notice any change in your child after being identified as gifted?
6.	Do you feel a special school program is necessary to meet the needs of gifted children?
7.	Does your school provide you with information about specific ways for parents to get involved as partners in your gifted child's education?
8.	What do you thing would be the best gifted program for your child? Please rank these programs, with 1 being your first choice and 6 your last. ____Cluster grouping ____Resource room/Pullout ____Community mentorship ____Independent study ____Special class ____Advanced placement
9.	Does your child like school?
10.	Does your child feel challenged in school?
11.	Who do you think should pay for a school's gifted program?
12.	How would you rate the communication between home and schoolabout the gifted opportunities yoru child receives?
13.	Have you ever discussed with your child what it means to "be gifted"?
14.	Has more than one child in your family been identified as gifted?
15.	Have you ever felt overwhelmed or threatened by your child's giftedness?
16.	Do you know of places where you can obtain information about giftedness?
17.	Do you think parents of gifted children would enefit from meeting regularly as a support group?
18.	Do you think gifted children themselves would benefit from meeting regularly as a support group outside of school time?
19.	About which of these topics would you be interested in knowing more? ____Personality characteristics of gifted children ____Identification procedures ____Creativity ____Building self-concept ____Handling failure ____Communication skills ____Methods of teaching the gifted ____Advocacy for the gifted ____Other (please specify)________

Table 1

Program Options

Rank	Program	% Ranking Program First	
1	Special class	N = 64	34
2	Cluster grouping	N = 38	20
3	Resource room / Pullout	N = 37	19
4	Advanced placement	N = 25	13
5	Independent Study	N = 14	7
6	Community mentorship	N = 13	7

Eight topics were listed about which respondents indicated they would like to know more. Those mentioned most often were building self-concept and handling failure. A majority of parents in eight of the twelve schools listed handling failure as a topic of primary interest. One mother wrote of her 14-year-old son, "He becomes paralyzed by fear of failure. He has difficulty starting a task or working too hard at a task...if he fears the end result will be less than perfect or that he won't be the best."

This subject was also mentioned frequently in response to the open-ended question on concerns of parents, although this was not anticipated and was therefore included in the "other" category in tabulating responses to this final item. A related problem was the fear that children would be frustrated by unrealistic expectations, either their own or someone else's. Twenty-one percent of those who answered this question listed an adequate challenge as their first concern for their children. Thirty-four percent listed it as one of three. Another problem area was seen by many parents to be peer relations. For some, it was a question of finding friends of similar interests and abilities, while for others, the concern was that their children should not be isolated or stigmatized by the label "gifted" or a less flattering equivalent, such as "brain." Several parents expressed a hope similar to that of a mother who wrote that she wanted her gifted child to "accept her giftedness and use it for the good of others rather than in a selfish way." Some were worried about teachers who, they felt, did not understand the needs and differences of the gifted. Among parents of secondary students, concerns related to colleges and career choices appeared.

Discussion

For the most part, those who participated in this project did not indicate they felt overwhelmed or threatened by having a child who was identified as high potential. They seemed to support Fisher's finding that parents believe that identification by the school carries with it "the obligation and the promise to provide additional resources for their gifted child" (Fisher, 1981). They want schools to be challenging for their students, but they also want them to know that it is all right to take risks and to fail sometimes along the way. Many parents stressed the importance of a "normal" childhood and peer acceptance.

The results of this survey offer suggestions both to those who plan and evaluate gifted programming and to those who are involved in parent education and support. It seems clear that more attention must be paid to the affective needs of the high potential child and of the family. The fear of being different or not accepted and the fear of failure not only worry both children and adults, but also affect their choices of the kinds of academic programs they want.

With some adaptations, a survey of this type could be used by any school district as both a planning and an evaluation tool. In addition to determining what types of learning models families feel best serve their children, it provides an excellent opportunity to elicit information from parents which will help address specific areas of concern in that community and develop a base of support and advocacy for gifted programming.

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SECTION FOUR: THE GIFTED INDIVIDUAL

PAPER NO. 11

Motivational Differences Among Groups With Different Academic Potentials and Achievements

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1983

Motivational Differences Among Groups with Different Academic Potentials and Achievements

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Abstract

This study examined the extent to which motivational factors in academically high potential students differed from those in average potential students. The California Achievement Test was used to select the sample groups. Each group was given the Junior Index of Motivation. Results indicated that the Very High Potential were the most idealistic, while Average Potential and High Potential were respectively more pragmatic. High Potential High Achievers were the most optimistic. Academically gifted students might be entertained by enrichment programs, but would probably benefit academically from a program that goes beyond enrichment alone. Academically high potential non-gifted students would probably benefit the most from enrichment programs, but may have serious psychological problems with a more extensive program.

Introduction

Motivation is basic to nearly all human endeavors. Considerable literature documents the importance of motivation on human behavior (Allport, 1955; Combs and Snygg, 1959). Maslow (1962), in his theory of motivation, suggested a hierarchy of needs in which a need at one level must be satisfied before that of a higher level, otherwise the unsatisfied need will dominate the person's whole motivational system until it is satisfied. Others (Athey, 1976; Frymier, 1979; Ryan & Templeton, 1980) have found a correlation between motivation and success in school-like activities. Frymier (1965) and Freehill & McDonald (1981) suggested that motivation gives direction and purpose to human behavior.

Renzulli, Smith, White, Callahan & Hartman (1976) developed a motivational checklist in their *Scales for Rating the Behavioral Characteristics of Superior Students*. The importance of motivation in regard to gifted students was highlighted by Renzulli (1978). Task commitment, i.e., motivation, is one of three areas Renzulli (1978) has used to define giftedness. Renzulli (1980) maintained that task commitment is developmental rather than hereditary.

Motivation is not often mentioned in the literature on the gifted. Wilson (1957), in his studies on the motives of gifted children, concluded that one can expect gifted children to naturally be more strongly and dependably motivated to learn than most "average" school children. Further, most gifted children are motivated in activities related to their special qualities of giftedness. Terman & Oden (1940), Terman (1942) and Nason (1952) found that high achievers were influenced by parental expectations for college or specific vocational plans, and that they were personally and socially adjusted. Sontag (in Gallagher, 1985) found motivation was the differential factor between children with IQ scores increasing from infancy to ten years of age and those with decreasing IQ scores over the same period.

Most motivational research regarding the gifted in schools has been concerned with the underachiever. Research by Barrett (1957), Gowan (1955, 1957), Lazarus (1955) and others found interest was the motivating factor. Fine & Pitts (1980), Gurman (1970), Nason (1952), and Whitmore (1980) felt that parents of underachievers were responsible for the lack of motivation in their children. In her extensive work on motivation and gifted underachievers, Whitmore suggested that gifted underachievers need to develop a more positive attitude toward themselves and their school work. On the other hand, Frymier (1965) argued that an individual's personal sense of involvement and worth is reflected in his/her motivation.

Ryan & Templeton (1980) pointed out that motivational research on the academically gifted has been limited to underachievers to the exclusion of analyses of motivational factors manifested by gifted learners; in fact motivation as a factor affecting learning in a school setting had rarely been considered in research.

The purpose of this study is to examine the extent to which there are differences in motivation and motivational factors between different groups of students based on their academic potential and achievement. This study's hypothesis was that there are statistically significant motivational differences between groups based on their academic potential and achievement.

Method

Subjects

Fifty-one seventh grade students from a north suburban St. Paul, Minnesota, school district were selected for this study. Selection was first based on the *California Achievement Test* (CAT) (1977) Aptitude Scores and second on the CAT Total Battery Scores. Five groups were identified and designated as: Very High Potential (VHP), High Potential High Achievers (HP/HA), High Potential Low Achievers (HP/LA), Average Potential High Achievers (AP/HA) and Average Potential Low Achievers (AP/LA). Ten students with CAT Aptitude Scores of 140 or higher and CAT Total Battery Scores of 99 (the highest possible score) were designated as Very High Potential (VHP). Nineteen other students were selected from those with Aptitude Scores between 130-139. Their CAT Total Battery Scores were then stratified. The ten with the highest scores, 97 and above, were selected as High Potential High Achievers (HP/HA). The nine with scores of 95 and lower formed the High Potential Low Achievers (HP/LA).

Students whose CAT Aptitude Scores were equal to or one percent either side of the mean (112) were considered for the Average Potential group. Their Total Battery Scores were stratified from highest to lowest. The eleven highest scores were then selected as Average Potential High Achievers (AP/HA). Likewise, an equal number of students were selected from the lowest CAT Total Battery Scores as Average Potential Low Achievers (AP/LA).

All five groups were initially the same size, but absences and parental refusals resulted in the actual sample sizes reported here. All data were adjusted for differences in sample size and for unusable responses.

Instrumentation

The *Junior Index of Motivation* (JIM), a nationally validated questionnaire to assess students' motivation toward school, was developed by Frymier (1965). It was administered to each of the five sample groups. Neither the questionnaire administrators nor the students were informed as to which group any student was assigned.

Factor analysis of the questionnaires was found by Frymier to yield six motivational factors. These are: Negative-Positive School Attitude (Factor I), Alienation-Belongingness (Factor II), Pragmatism-Idealism (Factor III), Fatalism-Personal Control (Factor IV), Pessimism-Optimism (Factor V) and Dogmatism-Flexibility (Factor VI). These factor scores, plus the total JIM scores, were considered in this study.

Results

As shown in Table 1, an F-ratio to test the difference among the Factor Means for significance gave an F = 709.13/29.84 = 23.76 and the critical F-value is = 2.51, we *reject* the null hypothesis that there is no difference among means of different factors.

Likewise, an F-ratio to test the difference among the student group means for significance gave an F = 162.02/29.84 = 5.43, and the critical F.95 = 2.78, we can *reject* the null hypothesis that there is no difference among the means of different student groups.

Table 1

Analysis of Variance of JIM Factor Means

	Sum of Squares	Degrees of Freedom	Mean Square	F
Factor Means	4,254.8	6	709.13	23.76*
Student Group Means	648.1	4	162.02	5.43*
Residual	716.3	24	29.84	
Total	5,619.2	34		

** $p < .05$

Tukey's *w*-procedure (Steel & Torrie, 1960), also called the "honestly significant difference," was used to test the paired differences between the means. A value of $w_{.05} = 8.59$ was obtained. Thus, any two means that differ by more than 8.59 were statistically different at the $p<0.05$ level of significance. Conversely, two means that differ by less than 8.59 are not statistically different at the $p<0.05$ significance level. The results are summarized in Table 2.

The VHP exhibited a high degree of idealism which may reflect their ability to handle, and even prefer, the challenge of change. Surprisingly, the degree of idealism of the other groups tended to be inversely proportional to their academic potential and achievement. Perhaps the high potential feel secure in their ability to cope with their current situation and would resist changes to unknown situations. On the other hand, the average potential group may feel that they could only benefit if the deck were redealt.

This study has several implications for classroom teachers and school administrators. First, only the VHP group as defined in this study are academically "gifted": the HP/HA and HP/LA are merely the upper end of a continuum of abilities and motivations from the average. The

Table 2

Differences Among JIM Score Means ($\alpha = 0.05$)

JIM Factor	AP/ LA	HP/ LA	AP/ HA	HP/ HA	VHP	*Relationships
Total Score	113.4*	120.8	122.5	123.0*	133.2*	a,d; d,e; a,e
School Attitude	99*	103	106	110*	112*	a,d; a,e
Alienation, Belongingness	105*	113	114*	116*	117*	a,c; a,d; a,e
Pragmatism, Idealism	125*	132*	133*	136*	142*	a,d; a,e; b,e; c,e
Fatalism, Personal Control	88*	100*	101*	107*	109*	a,b; a,c; a,d; a,e; b,e
Pessimism-Optimism	94*	98*	101*	106*	116*	a,d; a,e; b,e; c,e
Dogmatism-Flexibility	107*	120*	122*	124*	128*	a,b; a,c; a,d; a,e

a = AP/LA ** $p < .05$
b = HP/LA
c = AP/HA
d = HP/HA
e = VHP

VHP group is discontinuous with the HP/HA, particularly in the area of pragmatism-idealism. Second, the "gifted" appear to look forward to change, whereas the high potential may be frightened by such change. This would suggest the need for two separate programs for the above average student: an enrichment program for the high potential and a "new horizons" program for the gifted. While an enrichment program might entertain the gifted, it will not meet their special needs. On the other hand, the placement of a high potential (but non-gifted) student in a "new horizons" program for the gifted may have serious psychological ramifications. Third, general use tools such as the California Achievement Test are not the appropriate means for identifying gifted students. The tests were neither designed nor validated for such use.

Discussion

This study initially assumed that the VHP, HP/HA and HP/LA groups were comprised of gifted students. If Wilson and Renzulli are correct in holding that high motivation is indicative of giftedness, the results of this study would suggest that only the VHP group treated here is academically "gifted." Only the VHP demonstrated high motivation at a statistically significant level.

No evidence can be marshalled from this study to either support or refute Whitmore's claim that gifted underachievers are not motivated (Table 2). Likewise, her theory that gifted underachievers have poor attitudes toward school is not supported by the data. This study possibly did not sample any gifted underachievers, only gifted achievers and high potential students.

Terman, Terman & Oden, and Nason found high achievers were personally and socially adjusted. The VHP scale was developed to measure motivation rather than social or personal adjustment; nevertheless, these data can lend indirect support to the views of Terman, Oden and Nason.

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SECTION FOUR: THE GIFTED INDIVIDUAL

PAPER NO. 12

Cognitive Style and Achievement: Is There A Relationship?

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Cognitive Style and Achievement: Is There A Relationship?

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Abstract

Five measures of internality, preference for autonomy, field sensitivity, preference for independent learning activities, and willingness to risk were administered to 105 third graders. Gifted students were found to be significantly higher for autonomy, field independence, willingness to risk, and internality. Male students were significantly higher than females in their willingness to take risks. Significant correlations were found among scores on the measures of locus of control, willingness to risk, preference for autonomy and for independent learning. The implications of these findings for educational practices for primary grade children are discussed.

Introduction

Educational studies of cognitive style have generally focused on a single aspect of an individual's style, noting relationships among achievement levels and described characteristics. Cognitive style refers to those psychological and perceptual aspects which represent an individual's consistent patterns for processing and acquiring information. Variations in style imply the existence of differences and preferences that are qualitative and/or quantitative (Ausburn & Ausburn, 1978).

Those aspects of cognitive style to receive attention in view of their recurrence in the research on achievement are: (1) degree of internality (field independence/dependence and locus of control); (2) preference for autonomy/independence in choice of learning activities; and (3) willingness to risk.

The theory of field independence/dependence (FI/FD) or field sensitivity, developed by Witkin (1962), was initially defined as a perceptual construct. It was later expanded and redefined to be the ability to disassociate or disembed a perceptually organized field from the whole. Subsequent research pointed to relationships between structural competence in spatial visualization and intellectual tasks, the extent of awareness of one's body/self, and the extent of autonomous functioning (Lovano-Kerr, 1980). Witkin (1962), in attempting to correlate personality variables, found those persons rated as more field independent (FI) tended to use themselves as references and to possess an internal form of reference. Field dependents (FD) were found to exhibit greater tendencies toward external references with externally defined goals and reinforcements. (Lovano-Kerr, 1980) Also noted by Witkin and studied in more depth by Saurenman and Michael (1980) was the possible connection between achievement and FI/FD. Higher levels of achievement were found to correlate positively with greater degrees of field independence.

Reference to internality (locus of control) has also been made to motivation. Deci (1983) found intrinsic motivation to be fostered by environments that support autonomy. In thirty-five intermediate classrooms, students were given questionnaires testing for levels of perceived competence and self-worth, as well as degree of intrinsic (internal) motivation. Those students rated higher in intrinsic motivation displayed greater conceptual learning as well as higher levels of self-worth and competence.

Milgram and Milgram (1976) also used measures of internality and self-concept in their attempt to note differences between groups of gifted and non-gifted Israeli students (N = 182 and N = 310, respectively). Among the gifted group, a strong relationship between higher degrees of internality and more positive self concepts were found.

Wasson (1980) addressed the question of learning style preferences, as related to achievement levels, for underachieving and high achieving gifted students. For high achieving gifted students, a definite ranked preference for certain learning styles appeared to exist. Most preferred were autonomous activities (teaching games, independent study, and peer teaching), with dependent activities least preferred (discussion, lecture, and drill and recitation). Of interest was the ranking of projects as sixth, even though a high degree of autonomy may be involved.

Williams (1980) identified four affective, divergent elements of creativity, one of which, risk-taking, has been found to correlate to the cognitive, divergent factor of originality. These two aspects of divergent production relate to one's ability and willingness to use autonomy in creative production. Saurenman & Michael (1980) also noted an increased ability to produce in a divergent fashion, although no direct correlations between creativity and field sensitivity were found.

While the studies cited vary widely in topics addressed, the question of student use of internal frames of reference appears to be a possible common thread. In this study, therefore, three research questions were posed in an attempt to establish this potential connection:

1) Does a relationship exist among orientation to internality (locus of control), field independence, preference for autonomy in learning, preference for independent learning activities, and willingness to risk?

2) Do high achieving gifted learners differ from other learners in internality, preference for independent learning activities, field sensitivity, willingness to risk, or preference for autonomy?

3) Do sex differences affect levels of achievement, internality, preference for independent learning activities, field sensitivity, willingness to risk, or inclination toward autonomy?

Method

Subjects

A group of third graders (N = 105) from a suburban Minnesota school served as subjects for this study. Of this group, 60 were females (56.7%) and 45 were males (43.3%). Nineteen students were identified as high achieving gifted (18.1% of the total sample). Ages of the subjects ranged from 8 years, 1 month to 9 years, 9 months. Tests were administered during the ninth month of the school year.

Three of the tests were sequentially administered in one large group setting over a two-hour period. Frequent breaks were taken to maintain on-task behavior. Scores on one test, Williams' *Test of Divergent Feelings* (DF), were obtained from a previously conducted testing session.

Instrumentation

Four instruments were used to measure correlations among the characteristics previously discussed. Measures included were: (1) the *Group Embedded Figures Test* (GEFT), a measure of field independence/dependence; (2) the *Test of Divergent Feeling* (DF), a measure of student willingness to risk; (3) the *Intellectual Achievement Responsibility Questionnaire* (IAR), a measure of student preference in learning activities; and, (4) the *Learning Styles Inventory* (LSI), a measure of student preference in learning activities.

The GEFT is comprised of 18 complex figures, 17 from the individually administered *Embedded Figures Test* (EFT), used by Witkin in his original research (1962). Correlations between the EFT and GEFT were found to be reasonably high, particularly for males ($r_m = -.82$; $r_f = -.63$), the negative values resulting from reverse scoring procedures.

Adult time limits of five minutes each for the individual sections of the GEFT have been set to yield a normal distribution of scores. In a pilot study with third graders, however, it was found that ten-minute time limits per section yielded comparable distributions. Thus, the ten-minute limits were used.

Williams' DF is one of three components of the *Creativity Assessment Packet* (CAP). It is a 20-30 minute exercise using a modified Likert Scale in which students are asked to rate thoughts, feelings, and preferences as: (a) mostly true about themselves (+2 points); (b) sometime true about themselves (+1 point); (c) mostly or sometimes untrue (0 points); or (d) can't really decide (-1 point). Although the test measures four affective characteristics related to divergent production, only the willingness-to-risk subscale was used in this study.

The IAR (Crandall, Katkovsky, & Preston, 1965) tests the degree to which children feel responsible for their successes and failures in academic and/or intellectual situations. It is made up of 34 forced-choice test items, each indicating an "internal" or an "external" locus of control for that situation. Points are totalled and a rating achieved (I ± 1). The IAR, normed on 923 subjects in grades 3-12, has a moderately high test-retest reliability (.69 for total I). In correlations of the IAR to tests of intellectual ability, slight relationships between the IAR and intelligence test scores (r = .26 for 3-5 graders and r = .16 for grades 6-12 only) have been found.

The LSI (Renzulli & Smith, 1978) is made up of 65 items designed to measure student attitude toward nine general categories or modes of instruction: independent study, peer teaching, projects, discussion, teaching games, simulations drill and recitation, programmed instruction, and lecture. Students rate various learning experiences on a five-point Likert Scale, ranging from 1 ("unpleasant") to 5 ("very pleasant").

The LSI was originally designed by asking a panel of experts to categorize various activities. Content validity was established by a factor analysis of data gathered from a sample of over 600 students. The Alpha internal consistency coefficient is .66.

Two subscales were formed from the IAR and used in this study, one (LSI-A) to note student preferences for autonomous or independent activity regardless of category, designation, and another (LSI-P) to measure student preference for those specific learning categories generally perceived to be more independent in nature.

Analysis and Results

Data were collected in four forms: (1) Pearson Product-moment correlations among individual measures; (2) cross tabulations of rank within groups from high to low on the individual instruments; (3) t-test comparisons of mean test scores for various groups within the total sample; and (4) ANOVA comparisons of means among gender groupings, while controlling for giftedness.

All instruments produced a wide range of scores. Each range was divided into three segments and labelled high, low, and middle or non-discriminating. Attempts were made to equalize as much as possible the proportions of students appearing in comparable groups on individual scales. High groups and low groups comprised 40%-45% of the students at either end of the respective scales. The middle or non-discriminating portion of the range involved 10%-20% of the students on the various measures.

Using information collected from the total group (N = 105) to note correlations among instruments, positive relationships were noted between the IAR and the risk-taking subscale of the DF (r = .2049). Positive relationships were also found between the IAR and each of LSI subscales (for the LSI-A, r = .3007; for the LSI-P, r = .2563). The two LSI subscales also correlated highly (r = .8966). The IAR did not correlate significantly with the LSI subscales, however, when the gifted sample was considered separately.

Cross tabulations of differences between gifted and non-gifted, considering the percentage of the group rated high to low, showed gifted students to be rated more internal with significantly higher preferences for autonomy. The GEFT yielded significant results (p < .005) with 73% of gifted rated as high field independent. Significant differences were also noted on the IAR (p = .027) with 52.6% of the gifted rated as highly oriented toward an internal locus of control.

While only these two measures yielded significant differences, on all five measures, the gifted group scored predominantly high. For non-gifted, the opposite was true. further, the percentage of gifteds scoring high was generally double to triple the percentage of non-gifted receiving a high rating.

Cross tabulations of differences in ratings for males and females showed significant differences on William's risk taking subscale in which 62% of males were rated as high risk takers compared with 31% of females.

Table 1 presents mean scores on T-tests for gifted versus non-gifted groups on the five measures. Scores are given as well as t values.

Table 1

Mean Comparisons of Gifted and Non-gifted Students on Five Measures of Creativity, Internality, and Field Independence

	DF	GEFT	IAR	LSI-A	LSI-P
Female					
Gifted x̄	21.7	19.5	24.3	73.0	84.5
Non-gifted x̄	18.5	15.1	22.95	68.5	82.6
t =	1.92	2.97*	1.00	1.25	0.41
Male					
Gifted x̄	24.1	19.98	26.2	73.7	89.0
Non-gifted x̄	22.0	15.2	23.3	67.2	79.8
t =	-1.19	-2.62*	-2.02	-1.49	-1.74
Total					
Gifted x̄	22.7	19.7	25.1	73.3	86.4
Non-gifted x̄	19.9	15.2	23.1	67.9	81.4
t =	2.22*	4.34*	2.12*	2.00*	1.55

* $p < .05$

T-test comparisons of scores for gifted and non-gifted students revealed the gifted to have significantly higher mean scores on all but the LSI-P subscale. Gifted students were found to be significantly more field independent, to possess a greater inclination toward autonomy, to be more internally oriented, and more willing to take risks.

Table 2 reports mean score differences relative to the question of gender. Gifted females scored significantly higher than non-gifted females on the GEFT. Correspondingly, gifted males were also significantly more field independent, possessed a greater inclination toward autonomy, to be more internally oriented, and more willing to take risks.

Table 2 reports mean score differences relative to the question of gender. Gifted females scored significantly higher than non-gifted females on the GEFT. Correspondingly, gifted males were also significantly higher on the GEFT. There was no significant difference, however, between males females on the GEFT when giftedness was controlled.

Significant differences between males and females were found, however, on the risk-taking subscales of the DF, but when the gifted sample was considered separately, no differences between male and female gifted students on the DF were found.

The Analysis of Variance revealed significant differences between males and females on the risk-taking subscale of the DF and on the GEFT. No other differences were found.

Table 2

Mean Comparisons of Male and Female Students on Five Measures of Creativity, Internality, and Field Independence

	DF	GEFT	IAR	LSI-A	LSI-P
Total N					
Females $\bar{x}$	19.2	15.9	23.2	69.3	82.98
Males $\bar{x}$	22.2	16.0	23.7	68.15	81.3
t =	2.99*	0.06	-0.62	0.54	0.66
Gifted					
Females $\bar{x}$	21.7	19.5	24.3	73.0	84.5
Males $\bar{x}$	24.1	20.1	26.3	73.6	89.0
t =	1.15	0.31	1.25	0.14	0.72
Non-gifted					
Females $\bar{x}$	18.5	15.2	22.96	68.5	82.7
Males $\bar{x}$	21.97	15.2	23.3	67.2	79.8
t =	3.05*	0.07	0.37	0.53	1.05

*$p < .05$

Discussion

Comparisons between gifted and non-gifted students showed the gifted achievers to be more autonomous in nature as evidenced by higher mean scores and greater than expected membership in high-rated groups on all five measures of creativity, internality, and independence. Of special interest was the failure of gifted students to receive higher mean scores on the LSI-P, especially in light of the high correlation of this subscale with the other instruments. Some question, then, may exist on the validity of the generalization that gifted students would prefer to be involved independently in special study and projects. A future study looking for explanations for these unexpected findings may lend some insight to the question of the most "appropriate" programming for achieving gifted students.

While positive correlations were found among the various measures, none appeared significant for the GEFT or the risk-taking subscale of the DF. Of the measures utilized in this study, these two instruments were considered the most questionable measures of the autonomy and internality constructs. Of interest for future study will be the effect of classroom environment and how it is perceived by achieving and non-achieving students. If the proposed interpretation of FI/FD is to be studied, a method must be found by which to test the thesis that the classroom environment is the "context" and the learning task is the "object" to be isolated or disembedded. Then the achievement behaviors of high FI students would be easier to understand as the successful isolation of learning from the "context". As it now stands, the question of FI/FD relationship to classroom behavior is as much a testing problem as an interpretation problem. Risk taking may be related to this same overall question, as an issue of whether students feel free to pursue learning independent of classroom procedures and teacher approval or whether they feel constrained by the environment and systems involved in the classroom setting.

Although significant gender differences were found in willingness to risk, it is of interest that this finding was not found to occur in the gifted sample studied. Both gifted females and males were more willing to take risks than their non-gifted counterparts.

Although findings of this study generally validated previous findings on the individual instruments, a major contribution of this study is its use of a single, relatively large population as the source for data collection on all five instruments.

As originally conceived, a major goal of this study was to note possible relationships of field independence/dependence to aspects of style readily affected by classroom practices. Independence was isolated because of its close connection to levels of achievement and its ability to be affected by educational practices (Laosa, 1980). Although positive results relating to this question were not found in this study, the question of primary educational practices and their effect on achievement need further attention.

Whitmore (1980), Laosa (1980), Witkin (1962), and Bloom (1977) have all alluded to the importance of the early primary years in the development of patterns of achievement, autonomy, and levels of internality. As relates directly to field sensitivity, Laosa concluded that levels of FI/FD can be affected positively by the use of discovery techniques and are still in the developmental stages through age 8. In light of these findings, a strong case could be made for programming to develop independence levels since increased FI has consistently been related to higher academic achievement. For primary gifted students, where curricula objectives are less clearly defined and patterns of achievement are just developing, these findings may suggest the need for independence as a program goal. Bloom (1977) has repeatedly stressed the importance of providing for this need, as the chances for remediating patterns of underachievement drop drastically after the age of 8 (grade 3).

If internality and/or autonomy, defined by whatever means, are indeed to be preferred as recent research suggests, and, if certain educational strategies can be shown to affect the growth of internality, a strong case can also be made for early intervention (the primary years) with focus on the enhancement of those preferred elements of personality. It will be important to look at possible relationships between environments in the primary grades which support and enhance autonomy, with continued observation of levels of achievement in succeeding years. The crucial nature of these early years in the process of education cannot be denied.

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SECTION FOUR: THE GIFTED INDIVIDUAL

PAPER NO. 13

Effects of Ability and Gender Upon Adolescent Perceptions of Self and the Future

Beverly Mooney
St. Paul Schools
1987

Effects of Ability and Sex Upon Adolescent Perceptions of Self and the Future

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Abstract

Two instruments were administered to 260 male and female gifted, regular, and basic ninth grade students to measure differences in their self-perceptions and their outlook on the future. Gifted learners differed significantly from other students in their desire to excel, to compete, and in their self-confidence. Basic students lacked self-confidence and a feeling of self-sufficiency. Gifted and regular students indicated significant differences from the basic learners in their belief that they have control over their future. Male and female students registered significant differences with males perceiving themselves as more industrious, courageous in conviction, and more spirited in disagreement. Females viewed themselves as emotionally expressive, talkative, neat and orderly, and considerate of others. Males were more likely to agree than were the females that they have control over the future and will be able to meet its challenges.

Introduction

In the history of human development, the step was small between realizing there was a future and wanting to know what was to come. Avoidance of crisis and catastrophe has always been a natural desire. However, the inclination to plan one's future in order to insure positive outcomes brings one face to face with the issues of values, means, and ends.

The well-respected philosopher, Fred Polak (1973), stated that humans are inevitably pulled toward the future while at the same time being pushed from their past. In a sense, humanity is on the dividing line between two worlds, one real, the other imagined. Knowledge and attitudes about the future have only the boundaries created by the human mind. Traversing this unknown territory becomes both heritage and task.

Various schools of thought have developed regarding visualization of the future. These images relate most usually to the value systems that are held by the visualizers, be they social scientists, societal critics, futurists, or visionaries.

A basic premise for being able to think realistically about the future is the willingness to consider such thinking important. Writers such as Singer (1974) have pointed out that societies, cultures, and persons are either oriented to the past, the present, or the future. Too often education has focused only on the first two, and really it is the future that is needed for meaning and structure. However, to concern oneself with the future can be a difficult process.

> To really grapple with the question of what futures are accessible to human thought, and what critical choices society faces, whether as conscious of them or not, is to confront internal issues of personal values and priorities that we might otherwise be tempted to evade. Hence, the study of the future is to change. (Harmon, 1984, p. 1)

Surrounded as we are by urgent problems of the present, we are provided with an ideal opportunity to seek understanding of how gradual change can evolve into a more desirable future. Knowing that past choices have shaped the present, one can readily understand the importance of a future focus to guide such choices made in the present.

Toffler (1974) argued that the ultimate purpose for the study of the future of education is *not* to seek orderly, complex, and totally accurate images of the future. Rather, students need help learning to cope with the crises and opportunities of real life. Individuals need to strengthen their abilities to anticipate and adapt to change. Students benefit from being a part of the real world as they continue to grow in the learning process.

Cornish (1977) further stated that education involving future orientation and study aids the learner in the decision-making process. To deal with alternatives, various approaches, and goal setting helps prepare young people for an ever-changing, increasingly complex world.

Any study of the future is value-laden. Therefore, Schuttenberg (1983) suggested that such study provides an ideal opportunity for growth in listening skills and understanding others whose views are different, yet important.

With gifted students' abilities to see patterns and situations from varying perspectives, future studies have provided an excellent learning opportunity. Kelly (1985) suggested that these students' needs for analytical skills fits well into the kinds of issues dealt with in future studies, be they social , technological, or ethical concerns. Studying issues from various perspectives with a reasoned view of social and personal consequences helps students become responsive to the needs of the present as well as sensitive to those of future generations.

The study of the future is applicable to both the gifted and non-gifted student. Basically there are three ways that future studies are incorporated into a school's curriculum: (1) as a separate course; (2) as a separate unit within a regular course; or, (3) as an infusion of the study throughout the curriculum in an interdisciplinary fashion.

Several studies have been conducted with students that have measured their attitudes toward the present and the future. In a study conducted in England by Brown (1984), students were surveyed on the likelihood and desirability of a particular scenario. Although their hopes were for advances in medicine, less pollution in the environment, stable prices and control of inflation, the researcher concluded that basically these young people were fairly pessimistic about the future.

Closely allied with these findings were two studies conducted in Europe (Borghi, 1983) that researched student attitudes toward the future as an index of the problems of life today. In general, these students were pessimistic regarding the world's politics, values, economy, environment, education, and peace. Interestingly, they maintained optimism regarding their own personal situations including marriage and family.

Ideally, the goal of any study of the future, be it for gifted or non-gifted students, would be to assist in formulating an image of the future for themselves personally, but also for society, with global considerations and understandings. That entire cultures have risen or fallen primarily as a result of their images of the future helps to explain the intimate relationship between the image and the future itself (Polak, 1973).

Singer (1974) contended that people carry an image of themselves as they are in the present as well as an image of what they expect or wish for in the future. He used the term "Future-Focused-Role-Image" to describe the way that even children tend to relate themselves to this future concept of time. This linkage between the self and time varies among people, social classes, and societies. Singer maintained that this "Future-Focused-Role-Image" operates like a self-fulfilling prophesy. In a sense it has a retroactive effect upon the present. The present of the person is directly affected by the image he has of the future. Singer (1974) contended that conduct, motivation, achievement, and behavior are closely related to expectancies regarding the future. This future time perspective is instrumental in the development of expectations or goals which the person works toward fulfilling.

For adults to believe that the way children see themselves in the future affects their academic performance as well as their ability to live and grow, is convincing information. This future focus is rather like a magnet toward which they are drawn. Reality is that a child's economic status or race plays strongly into the picture (Poussaint, 1974). Hence, conditions of poverty or color caste make for helpless and unpredictable future images. The implications in the present for these children are obvious. It is understandable to feel helpless and lacking in motivation to achieve. This should be a further impetus for our society to seek to correct its present ills.

Bart (1974) related this future image concept to women. She claimed that society's messages of inequality and what is considered "feminine" behavior based on past beliefs have had devastating results. "Sex-typing" has occurred. Young people's future images of themselves as well as society's channelling of them has been done according to their sex. Bart's concern was that schools must truly reorient themselves to the present and the future to help young people become adaptive and ready for change in today's world. An open-ended environment is necessary if children are to enjoy a more enriched and accurate image of the future.

The importance for all people to become futuristically oriented seems an evident conclusion. If the future is indeed the place where we will spend the rest of our lives, if the image we have of the future has transforming effects on present living, and if we do influence what evolves in the future by even the small choices we make today--certainly it seems logical that we concern ourselves with the concept of the future.

The purpose of this research was to focus on the images of the future in adolescent students in order to understand their concepts of world problems and their personal views of the future. It was expected that the data obtained in this study would support the following hypotheses:

1. Students in gifted and regular classes would indicate more positive self-perceptions of future roles than students in the basic classes.
2. Adolescent boys and girls would continue to maintain traits of attitude and behavior in line with traditional societal sex role expectations.
3. Both male and female students in the gifted, regular, and basic classes would have a fairly pessimistic outlook about their future world, but would maintain optimism about their own personal lives.

Method

Subjects

The sample in this this study consisted of 260 ninth grade students from a midwestern, suburban, predominately white, middle-class high school. These students were grouped by ability level into three homogenous social studies classes, determined on the basis of choice and previous performance in the subject area. Table 1 displays the number of male and female students in the gifted, regular, and basic classes, to whom the two surveys were administered.

Table 1

Population by Ability Level and Sex

Sex	Gifted	Regular	Basic	Total
Male	26	82	10	118
Female	19	112	11	142
Total	45	194	21	260

Instrumentation

The *What Kind of Person Are You?* inventory (WKOPAY) used in this study was developed in 1976 by Joe Khatena and E. Paul Torrance. Students were presented with two choices for each of fifty items and were asked to select the term that best described them as a person. If neither term was an exact description, they were asked to choose the one that was nearest to their true opinion. Items on the survey were clustered through factor analysis (Bledsoe & Khatena, 1973-1974) into five factor orientations: (1) Acceptance of Authority; (2) Self-Confidence; (3) Inquistiveness; (4) Awareness of Others; and (5) Disciplined Imagination. The authors have amassed much validity evidence supportive of this inventory as a measure of creative self-perceptions. Its content validity was supported by previous studies on creative personality and by panel judgment. Construct validity was determined by factor analysis, and criterion-related validity was established by measuring its correlations with other measures of creative thinking, personality inventories, biographical reports, and rating scales. Test-retest reliability of the inventory ranged from .97 for same day testing to .80 for six-week retestings.

The *Future Questionnaire* (FQ) was developed by Vicki Connell and Richard Barton in 1986. The first twelve items of this questionnaire asked students how they felt about the future. Respondents were to check the response that most accurately described their feelings, ranging from strong agreement to strong disagreement on a five-point Likert Scale. The remaining ten statements, also used a five-point Likert Scale and required students to indicate the likelihood that a particular world situation would occur. Four aspects of future images are measured with the FQ: (1) personal control over one's own future; (2) general optimism toward the future; (3) issue optimism; and (4) extremeness of views about specific future issues. The survey was validated on a sample of 462 gifted and non-gifted students, grades 3-12. The four image aspects were found to be independent, but related constructs.

Analysis and Results

What Kind of Person Are You?

Frequencies were tabulated for each of the responses on the WKOPAY. More than two-thirds of the students saw themselves as socially well-adjusted, sophisticated, adventurous, energetic, self-assertive, courteous and polite. Seventy-five percent of the students viewed themselves as considerate of others, feeling strong emotions, imaginative, receptive to ideas of others, determined, competitive and self-confident.

Chi Square analyses were run on item responses by ability level and sex. Table 2 displays the significant differences among gifted, regular, and basic students. Gifted students perceived themselves more strongly as desiring to excel and compete, more self-confident, having a sense of beauty, more courteous and determined, sophisticated, yet more likely to disturb procedures and less likely than other students to describe themselves as attempting difficult tasks, and conforming, socially well-adjusted. The basic students described themselves in each instance as less than would be expected in the areas of sense of humor, being determined, self-confident, sophisticated,self-sufficient, and doing work on time.

On the Chi Square analyses of the WKOPAY by sex, a number of significant differences were found. Table 3 displays the results. Ninth grade males viewed themselves as industrious, courageous in conviction, spirited in disagreement, reserved, courteous and polite, and with a sense of humor. They saw themselves less than expected as neat and orderly, considerate of others, talkative, feeling strong emotions, affectionate and loving, and having a sense of beauty. The female students were more likely to regard themselves as neat and orderly, considerate of others, talkative, feeling strong emotions, affectionate and loving, and with a sense of beauty. Less positive than expected were females' self-appraisals as industrious, courageous in convictions, having a sense of humor, reserved, occasionally regressing, courteous and polite, and

Table 2

Differences Among Ability Levels in Frequency of Response to Items on the "What Kind of Person Are You?" Survey

Item	Gifted	Regular	Basic	P Value
a. socially well-adjusted	36*	132	12	
b. occasionally regresses	7*	61*	8	.05
a. persistent	24	89	11	
b. work on time	21	105*	9	.05
a. sophisticated	35*	135	10*	
b. unsophisticated	10	57	10*	.05
a. sense of humor	30	125**	8**	
b. talkative	15	67	10	.01
a. difficult tasks	15**	103**	9	
b. deserves to excel	30**	88**	10	.01
a. disturbs procedures	34*	68*	13*	
b. accepts authority	21*	123*	8*	.05
a. strong emotions	26*	150*	20*	
b. reserved	19*	43*	1*	.05
a. imaginative	35	167*	16	
b. critical	10*	26*	4	.05
a. determined	39*	165**	13**	
b. obedient	6	29	7**	.01
a. affectionate	28	139***	13	
b. courteous	17***	54	5	.001
a. asking questions	25	94	12	
b. quiet	20	99*	8	.05
a. competitive	37**	143	14	
b. conforming	8	51***	5	.001
a. sense of beauty	26***	69***	8	
b. socially well-adjusted	19***	123***	10	.001
a. self-confident	37**	147	10**	
b. timid	7**	47	11**	.01
a. self-sufficient	28	123***	8***	
b. curious	16	70	10	.001
a. eccentric	14	47	5	
b. socially well-adjusted	31*	146***	14	.001
a. prefers complex tasks	21	76	10	
b. work on time	24	114**	8	.01

spirited in disagreement. Ambiguous data were collected on males' and females' self perceptions as socially well-adjusted. On certain items regarding this trait, males indicated they were well-adjusted, while females reported the opposite. On other items involving being socially well-adjusted, the reverse was true.

Table 3

Differences Between Sexes in Frequency of Response to Items on the "What Kind of Person Are You?" Survey

Item	Male	Female	P Value
a. industrious	73***	58***	
b. neat & orderly	45***	84***	.001
a. socially well-adjusted	36*	132	
b. occasionally regresses	7*	61*	.05
a. considerate	90***	131***	
b. courageous in convictions	28***	11***	.001
a. sense of humor	87***	76***	
b. talkative	28***	64***	.001
a. strong emotions	74***	122***	
b. reserved	43***	20***	.001
a. receptive to ideas	91*	122*	
b. negativistic	27*	18*	.05
a. haughty	34*	23*	
b. courteous	84*	119*	.05
a. affectionate	68***	112***	
b. courteous	48***	28***	.001
a. remembers well	57*	50*	
b. talkative	60*	92*	.05
a. sense of beauty	35**	68**	
b. socially well-adjusted	79**	73**	.01
a. self-confident	97*	97*	
b. timid	21*	44*	.05
a. versatile	86*	83*	
b. popular	29*	57*	.05
a. spirited in disagreement	63***	26***	
b. talkative	55***	115***	.001
a. prefers complex tasks	60*	47*	
b. work on time	55*	91*	.05
a. good guesser	53*	45*	
b. receptive to ideas	63*	96*	.05

Correlations among items on the WKOPAY were computed. All items were found to be independent of each other.

Future Questionnaire

Frequencies were tabulated for student opinions on the FQ. More than two-thirds of the students were in disagreement or were uncommitted that the world will be a better place 25 years from now. Concerns were primarily focussed on the hunger problem, environmental pollution, over-population, and poverty. However, two-thirds of the students were optimistic about their own personal future, the control they have over it, and their possession of the abilities needed to meet these challenges. More than half were of the opinion that how they feel about the future does have an effect on what they do in the present, but were evenly divided as to whether or not an individual person can influence one's own country, with almost as many having no opinion about this at all. Approximately two-thirds of the students thought it likely that by 2010 A. D. scientific developments will result in longer, healthier lives and that alternate energy sources will be developed before non-renewable ones are exhausted. Nuclear war was a cloudy issue. Opinion was evenly divided on its likelihood, with most students uncommitted either way.

ANOVA's were run to measure differences among item responses by ability level and sex. Several significant results were found among students of different ability levels in their views about the future. Table 4 displays the significant differences found among the three ability levels. Gifted and regular students were in agreement that they have control over what their future will be like, contrasted to the basic students registering no opinion. The resolution of the world's hunger problems by 2010 was thought to be "very unlikely" by the gifted. The regular students considered it as "unlikely", but the basic students were more likely to feel they "didn't know." Gifted students were more optimistic about scientific developments enabling people to live longer, healthier lives in the future than were either the regular or basic students. The gifted were more positive, as well, than either of the other two groups about the possibility of developing alternate energy sources before non-renewable sources such as coal and oil are exhausted. Gifted and regular students were "unsure" about the likelihood of nuclear war. However, the basic students leaned more toward the likelihood of its occurrence.

Table 4

Mean Differences Among Ability Level in Response to Items on the "FQ"

Sex	Gifted	Regular	Basic	F
Control over future	4.111	4.015	3.333	4.80**
World hunger resolved	1.8889	2.0567	2.4762	3.09*
Longer, healthier lives	4.4667	3.7835	3.4286	13.37***
Nuclear war by 2010	3.356	3.036	2.667	3.08*
Alternate energy developed	4.0222	3.6031	3.4286	6.62**

* p < .05 ** p < .01 ***p < .001

On the ANOVA's of the FQ by sex a number of significant differences were found. Table 5 exhibits the results. Boys were significantly more likely to agree than were the girls that they have control over what the future will be like as well as more confident they will be able to meet its challenges. Boys tended toward greater disagreement about being fearful to think about the future because of what may happen than did the girls. The girls, on the other hand, were more likely than the boys to encourage friends to think about long-range effects of their actions. Boys were more likely to believe that by 2010 the world's fresh water supply will have been exhausted. They thought it more likely than did the girls that scientific developments would enable people to live longer, healthier lives and also that alternate energy sources would be developed to replace non-renewable ones. On the nuclear war issue, the boys were more likely to be neutral while the girls leaned toward more pessimism regarding its occurreance.

Table 5

Mean Differences Among Sexes in Response to Items on the "FQ"

Item	Male	Female	F Value
Control over future	4.161	3.824	7.14**
Fearful about future	3.636	3.319	4.72**
Encourage friends to think ahead	3.1102	3.4571	9.47**
Confident meeting challenges	4.0424	3.6879	10.86***
Fresh water exhausted by 2010	3.6017	3.1338	14.39***
Longer, healthier lives	4.1017	3.6831	13.39***
Nuclear war by 2010	3.259	2.901	6.93**
Alternate energy developed	3.8051	3.5423	7.57**

** p < .01 ***p < .001

Correlations among items on the FQ were completed. No significant relationships were found among items. However, when the items generally clustered by the survey authors under the rubric of "General Optimism Toward the Future" were pooled, the boys were significantly more positive than the girls at the p< .01 level of significance (Boys x - 3.41; Girls x - 3.20). On items clustered on "Issue Optimism" (relative to specific issues that are likely to be important in the future), again the boys were more positive that the girls at the p< .01 level of significance (Boys x - 2.92; Girls x - 2.78).

Discussion

The first two hypotheses were clearly supported by the significant findings based on WKOPAY. Students in the gifted and the regular classes did indeed indicate more positive self-perceptions of their future roles than did the students in the basic classes. As was expected, adolescent boys and girls indicated a continuance of traits in attitude and behavior in accordance with traditional societal sex role expectations.

The findings relative to the third hypothesis, however, indicated some mixed results. Gifted students indicated optimism regarding particular technological developments expected in the future although gifted, regular, and basic students were pessimistic about the hunger problem specifically. Also negating this hypothesis was the finding that the boys showed significant differences in their optimism about their own ability to control their future, as well as to meet its challenges.

It was interesting to note in the WKOPAY inventory the close alliance these adolescent boys and girls had with what have been traditional sex roles of attitude and behavior. Neither group veered very far from what have been acceptable norms for what society has considered "typical" male and female qualities. The FQ seemed to further reveal that the boys felt more secure and optimistic about their futures as well as their abilities to meet the challenges it would bring than did the girls. These findings may indicate that our educational process for young women and men must still be adjusted to eradicate inequities and stereotypes in expectations regarding women's roles, goals, and abilities.

The students in the gifted and regular classes displayed some very positive self-perceptions on the WKOPAY survey. Rather surprising was the finding that the gifted did not prefer attempting difficult tasks but did desire to excel, whereas the regular classes viewed themselves from the opposite perspective. It is difficult to know if these findings indicate an inherent lack of motivation to be challenged in gifted adolescents or merely less general exposure to inherently difficult tasks.

As was expected the gifted tended to be more competitive, whereas the regular students reportedly utilized determination, getting work in on time, and greater conformity to meet school standards. The basic students revealed evidence of the difficulties they have had with the academics of school as well as the lack of self-confidence and self-sufficiency that would be so helpful in meeting their challenges. Incorporating affective concerns into their curriculum is an obvious need for these young learners.

It was interesting to observe that students were generally quite pessimistic about some very serious world problems of population, hunger, pollution, and poverty, and yet maintained a very optimistic outlook about their own personal future and their ability to have control over and meet its challenges. These findings corroborated Borghi's (1983) previous conclusions regarding pessimism toward world problems but optimism toward future personal situations.

Doubt surfaces concerning whether or not adolescents possess a global view of the world. That each individual student is a part of the problems of this world, as well as of the solutions to those problems, is not always clearly understood. If the far-reaching goal of our educational process is to prepare young people for the future, questions are raised as to the kinds of education for leadership and responsibility we are teaching. Certainly young people need to understand that a "cut of the pie" and the "good life" cannot be theirs without concern for the rest of humanity and the earth itself.

In focusing upon the relationship between the findings established by these two instruments, some general observations may be noted. Generally, students in this study have indicated strong qualities of awareness of others as evidenced by the clustering of those traits on the WKOPAY inventory. To utilize this by broadening their scope of concern to encompass global ramifications seems a logical next step. That students are perceptive about their own strengths and weaknesses can generate empathy for the greater world, its peoples, and its problems. Capitalizing upon the "Future-Focused-Role-Image" concept (Singer, 1974), it may be that educators who concentrate on the present positive perceptions the students have about themselves and their belief that they have control over the future will produce students able to meet future challenges with an optimistic outlook. Self-fulfilling prophecies can have dynamic repercussions.

Although the sample size was large, a limitation of this study was the predominately homogeneous of population it represented. Additionally, having three different teachers in charge of the questionnaires' completion by their classes resulted in slightly different instructional techniques. Data from fifteen surveys could not be used because of faulty or largely incomplete information.

People using their strengths to work toward a world that is better not only for themselves, but for the future of all mankind is a worthy goal for education and well deserving of an educator's best efforts and concerns. Edward Cornish (1977) perhaps best summed up the importance and dimensions of a future-oriented outlook.

> Be open to experience ... to all types of ideas ... think in global rather than national terms ... have a time perspective that extends some distance into the future as well as backward in time ... share a deep concern about preserving the natural environment ... exhibit a genuine concern for all living humanity ... have a great respect for science and historical facts ... be conscious of the freedom of individuals to make decisions that will have tremendous consequences for good or ill ... share optimism about the years ahead ... be hard working with a sense of mission that what we are doing is important and will help to create a better world. (pp. 184-186)

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